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Volume XXXVII

In using this index the reader should not fail to note that it is divided into five departments, namely, General, Editorial, A. I. Root's writings, Contributors, and Illustrations. The index of General includes everything except Editorials, Illustrations, and A. I. Root's writings.

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Gleanings in Bee Culture



Ring out, wild bells, to the wild sky,
The flying cloud, the frosty light:
The year is dying in the night;
Ring out, wild bells, and let him die.

Ring out the old, ring in the new,
Ring happy bells across the snow:
The year is going, let him go;
Ring out the false, ring in the true.

Ring out the grief that saps the mind,
For those that here we see no more;
Ring out the feud of rich and poor,
Ring in redress to all mankind.

Ring out old shapes of foul disease;
Ring out the narrowing lust of gold:
Ring out the thousand wars of old,
Ring in the thousand years of peace.

— Tennyson.

JANUARY
1919

Vol. XLVII No. 1

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GLEANINGS IN BEE CULTURE

JANUARY, 1919

EDITORIAL

WITH THE WAR OVER and the restrictions on the use of sugar removed, it is time to suggest the production of some comb honey for the coming season.



Now for Some Comb Honey.

Very rightly and patriotically the beekeepers of the country heeded the call during the war to produce extracted honey to the exclusion of comb honey, in order to meet a great food demand for sweets. This was not only right but profitable. Conditions are now changed, and comb honey should once more be given recognition, not only for its own excellence but to stabilize honey prices and relieve what may be an overproduction of extracted honey. To many consumers there is no honey like comb honey. Its attractive appearance, its unrivaled flavor, and its very stamp of the beehive give it a peculiar appeal. All beekeepers who have comb-honey equipment will serve themselves well and serve the future honey market well by producing comb honey the coming year.



AT SAN DIEGO, CAL., a lady at the close of the University short course in beekeeping said to Dr. E. F. Phillips and his staff that she felt as if she had just come from an old-fashioned Methodist camp meeting where she had got real religion. She had enjoyed every minute of the course, had gathered new inspiration, and now felt that she could be a real and better beekeeper. Others expressed themselves in a similar manner. It was remarkable how the attendance kept up in spite of the flu, which was bad. The beekeepers sat clear thru the sessions, giving the closest attention.



Seemed as if She "Got Real Religion."

The staff of instructors consisted of Dr. E. F. Phillips, Geo. S. Demuth and Jay Smith of the Bureau of Entomology, Washington, D. C.; Prof. Geo. A. Coleman of the University of California; M. H. Mendelson, a lifelong and extensive beekeeper; Frank C. Pellett of the American Bee Journal; and E. R. Root of Gleanings in Bee Culture.

The whole keynote of the course was better beekeeping and better beekeepers. In addition to demonstrations, theory, and practice, particular attention was given to bee diseases, their detection and cure. Foul

brood, European and American, has got a strong foothold in California. Considerable difficulty has been experienced because in many cases one disease has been confused for the other. Foul-brood inspection has so far been unable to hold the disease in check. It is to be hoped that these short courses will do much to clear up the confusion as to the two brood diseases.



A NEW YEAR AGAIN, and a new period in beekeeping. The great war now ended



Beekeeping in the New Year.

has touched and changed beekeeping as profoundly as it has many other interests and industries. Because of the worldwide shortage of sweets, the importance and possibilities in beekeeping have been brought to the attention of everybody as never before. So it is that the business of producing honey has been, in a way, dignified. The price level of honey has risen, never to return to the old low levels. With this bettered position of the honey-producer and of honey, comes a new impulse for better beekeeping. The better beekeeper—the good-business beekeeper—is already here; but more of them are on the way today than ever before. It is not going to be long till many honey-producers are going to conduct beekeeping as well and as wisely and as scientifically and in as business-like way as the successful stock-breeder of the corn belt conducts his business. The new year will see a greater advance along these lines than any of the years that have gone before. So it's a hearty welcome that the beekeepers of the world extend to 1919.



SINCE ARRIVING in California (from where this is written) the Editor of Gleanings



That New Metal Comb.

ings has been investigating, as he could, the aluminum-comb invention, originating with the MacDonald Artificial Honey Comb Company, Upland, Calif.

We find a general feeling out here on the Coast that this new beekeeping invention is full of promise. To say that it is (or can be made) a success would be premature. That bees have filled sample combs of it with honey and sealed it with their own cap-pings is proved by the specimens that were

on exhibition at the beekeepers' meeting recently held in San Diego. That queens have laid eggs in it and that bees will raise nice brood and seal it over is equally proved by sample combs that were shown at the same time and place. That bees will always fill it with brood or honey is claimed by some who have tried it, to be untrue. Indeed, as stated in December Gleanings, our own bees rejected such comb given them in late fall at Medina. Such a test at such a time, however, we would not regard as conclusive. The fact that bees and queens have used the substitute comb leads to presumption that the new all-metal combs when perfected may prove a success, so far as the bees are concerned. Whether the new article can be made a commercial success, that is, can be put on the market at a price that will compete with combs built from comb foundation, remains to be seen. The present price for 10 all-metal combs, Langstroth size, is \$6.00 f. o. b., Uplands, Calif. The makers believe that this price can be reduced when the present war price of aluminum reaches a more normal figure.

While the advantages claimed for the metal comb are not as yet proved, it would seem that actual tests might prove a part or possibly all of them. If so, will the public, assuming that they cost twice as much as wax combs, pay the extra price? Perhaps so.

In a future issue we shall have some illustrations showing the details of construction.

In connection with this subject of metal comb, it is interesting to know that Quinby succeeded many years ago in making artificial comb out of tin in which the queen laid and bees were reared. But Quinby's conclusion was that metal combs were impracticable because of weight and expensiveness. Aluminum for commercial uses did not exist in Quinby's day, else he might not have condemned metal comb as being either too heavy or too expensive. See "Quinby's New Beekeeping," edited by L. C. Root, pages 193-195. A. I. Root more than 40 years ago experimented with metal comb and found that bees would occupy the cells when coated with wax. L. C. Root in his revision of Quinby's work on beekeeping expresses his "belief in the future success of complete artificial comb."



VERY RECENTLY we were in a piece of woods down in a gully that we thought



Windbreaks
on all
Four Sides.

would afford an ideal spot for a winter apiary. The very day we looked over the loca-

tion there was a strong wind. Remarkable to relate, the sweep of wind thru this gully, in spite of the trees, was strong. The more we have studied into this matter of windbreaks, the more we feel that the fences used by R. F. Holtermann, entirely surrounding an apiary, as shown on pages 591

and 592 of our issue for October, are better than an enclosure of trees not closely placed. For example, a north wind could not glance up and then down and out. It will sweep over the top because there is no outlet on any one side.

The Holtermann fence is made of cheap boards 10 feet long, altho longer might be better. They are nailed upright on cross-pieces fastened to posts. His apiaries cover a **relatively small plot of ground** and are **surrounded on all four sides**, for the reason, we suspect, that south and east winds are sometimes 'as destructive as those from north and west.

Usually shelter on the north and the west sides has been considered sufficient. During the past winter two of our yards had an exposure from the southwest of a couple of miles, with absolutely nothing to stop the wind. In both there was considerable loss, and in one over half the covers were blown off, notwithstanding there was good protection on the north and the west. This blow was followed by a heavy rain that soaked into the packing and later froze. The result can be imagined.

For years we have noticed that where there is a long wind-sweep from the south or the east there were liable to be some losses; and we have come to the conclusion that it is almost as important to protect an apiary from the south and the east as it is from the west and the north.

Coming back to the form of fence adopted by Mr. Holtermann—upright boards nailed on to cross-pieces—it is cheap and effective. The boards should not be placed nearer to each other than half an inch. The theory of a windbreak is to break the force of the wind rather than to put up a solid slab against which the wind may glance and then curve downward. When a blast of air filters slowly thru an obstruction its force is broken.

As already mentioned, another secret of Mr. Holtermann's success is that his yards surrounded by board fences are **relatively small**. He usually selects an apple orchard and then surrounds it with his fence. The colonies are placed in groups of four; and this arrangement makes it possible to put a large number of colonies in a small space. When it comes time to pack, the hives are moved close together, in groups of four, six or eight inches apart and then packed.

We dare not tell you the big crops of honey Mr. Holtermann has secured. It should be made clear that it is not the location (which is good), but it is the man and his methods that really make these yields possible. If there is any one factor that has contributed to his remarkable success it is his good wintering, and no small part of that wintering is his scheme of windbreaks.

We are adopting the Holtermann form of fence; and where we have a long wind-sweep we have decided to protect all four sides—east and south as well as west and north.

BEES IN POUND PACKAGES

A Comparison with Wintered-over Colonies. Results with Two Pounds Shipped North in Early Spring

By E. R. Root

At one of the Ontario conventions some four or five years ago I told something about the possibilities of shipping bees without combs by express to the North; and, when I intimated that it might be possible (I did not say it was) to make two pounds of bees without combs shipped from the South in April do as well as a colony wintered over requiring between 30 and 40 pounds of stores, the convention thought I was joking; and then when they found I was serious they "gave me the laugh." On the basis that the colony would require 40 pounds of stores, the price then being 12 cents in Canada, I figured it would cost in the neighborhood of five or six dollars to winter over a colony of bees. At the prevailing price of \$1.00 a pound for bees, without queen, we in the North could get, I figured, two pounds of bees and a queen from the South in early spring for about \$3.50. I went on to say that many a colony wintered over would not have two pounds of bees in the spring.

After my talk that day several came to me and asked if I was not a little wild in my assertions. When I said no, they seemed to feel I would be wiser some day. Well, the result was that a number of beekeepers thought enough of the proposition to try it out the following spring. For results of this, see *Gleanings*, page 744, for 1915, and page 108,

for 1917. In the last reference C. W. Hellen, Markham, Ont., secured from 17 one-pound packages of bees, each with queen, 1,800 pounds of honey and had

left 17 nice colonies for winter. This actual performance went clear beyond my dreams, and he was a beginner.

In the mean time I began to talk the pound-package business in *Gleanings*. We shipped bees without combs all over the United States; and when the candy was made right, and the weather was not too warm, we could send them long distances.

About this time the beekeepers in the South began to advertise bees in pound-package lots in a large way. Thousands upon thousands of dollars' worth of bees were sold to beekeepers in the North. Some beekeepers reported most gratifying results. In the mean time the price of honey began to mount, and the demand for pounds of bees became greater. Then came the severe winter of 1917-18, when there were severe losses all over the North. This, of course, stimulated still more the demand for bees in package form. The result was that many of the package men were oversold. Others accepted cash orders when they should have returned the money.

A Remarkable Record.

The man who has kept the most careful record of the possibilities of a two-pound



Fig. 1.—One of David Running's outyards run for extracted honey. The bees in this yard were wintered in the cellar under the building shown in the background. The cellar referred to is the famous David Running cellar, mention of which is made on page 524, September issue, and in which there has been perfect wintering for the last 15 years.

package of bees received from the South and shipped North is David Running, Fillion, Mich., president of the National Beekeepers' Association, and acknowledged to be one of the authorities on cellar wintering. If any man in all the United States could winter bees, to compete with bees in two-pound lots from the South, that man was

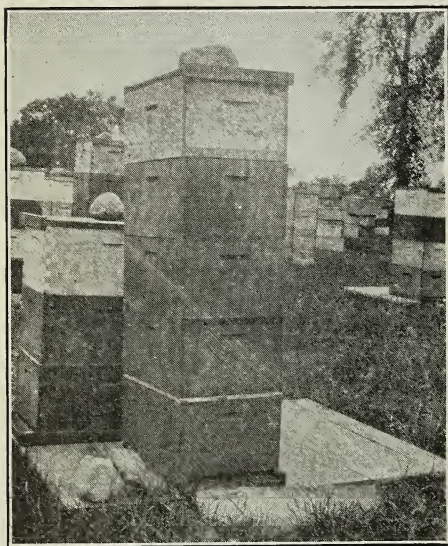


Fig. 2.—This colony occupying the five-story hive is one started from two pounds of bees received in the latter part of last April, at David Running's home yard. As will be seen by the general article, these two-pound packages received by express from the South went a little ahead of the colonies wintered in the North.

Mr. Running. The following statement of what he did was read before the Michigan State Beekeepers' convention last winter:

Twenty 2-pound packages of bees delivered at my station on the 27th of April cost \$3.25 per package at shipping point. The express charge was 27 cents each, and they were fed about 5 pounds of honey per package, which, at 17 cents per pound, would equal 85 cents, making a total cost of \$4.37 per package.

These 20 packages produced a total of 1,675 pounds of honey, or an average of 83¾ pounds per colony, which, at 17 cents per pound, would bring \$284.75, or \$14.23¾ per colony, making a net return of \$9.86¾ per package.

Ten packages delivered May 15, or 18 days later than the other twenty, cost \$3.00 at shipping point. The express charge was 37 1-7 cents per package each, and these were also fed about 5 pounds of honey each, which, at 17 cents per pound, would equal 85 cents, making a total cost of \$4.32½ per package or colony. These 10 colonies produced a total of 585 pounds of honey, or an average of 58½ pounds per colony, which, at 17 cents per pound, would bring \$99.45, or \$9.94½ per colony, making a net return of \$5.72 per colony.

You will notice from these figures that the packages received first gave me \$4.14¾ per package more than those which were delivered 18 days later, or an average of 23 cents per day for each package for the 18 days.

The Fillion apiary in which these packages were worked also contained 50 colonies which were wintered in good condition, and which produced a total of 2,875 pounds of honey, or an average of 57½ pounds per colony, which, at 17 cents, would bring \$488.75, or \$9.77½ per colony. Now taking these 50 colonies to cost the same as the average cost of the 30 packages would bring them at \$4.32 1-6 per colony, which, deducted from the above \$9.77½, would leave a net return of \$5.45 1-3, or \$4.41 less than the average net returns from the first 20 packages received, and 27 cents per colony less than that secured from the last 10 packages.

There are two things brought out by this statement: 1. That the bees received from the South on the last of April did relatively much better than those received 18 days later. 2. That the two-pound packages received both on April 27 and May 15 yielded in the one case 26 more pounds of honey per colony, and in the other case one pound more honey per colony than those that were wintered over in the North. In this he exceeded my tentative statement at the Ontario convention.

Limitations of Pound Packages as a Bee-Supply Source.

It would hardly be fair to make this a basis of comparison between all bees shipped from the South the last of April and those wintered outdoors or in the cellar; but it goes to show that my "wild" statement made at the Ontario convention was not so wild after all. Remember I said I *thought* it might be possible. I did not say then, neither do I say now, that packages of bees in two-pound lots will, on the average, yield larger returns per colony than bees wintered

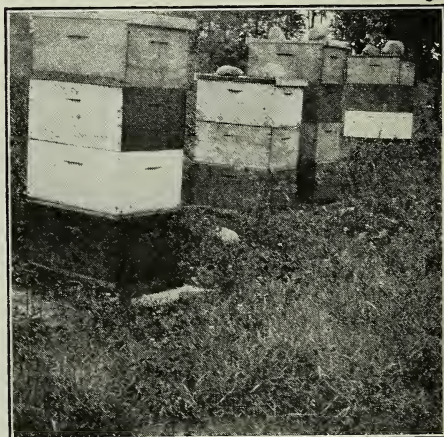


Fig. 3.—This picture shows a row of hives, the colonies of which came from two-pound packages received from the South, and which, according to David Running, held their own against bees that wintered in the cellar under the most favorable conditions.

over. But suppose these two-pound packages are a better investment than entire colonies wintered in the North, yet there would not be facilities enough in the South to take care of the Northern beekeepers if all these

Northern beekeepers were fools enough to extract all the honey away from their bees, brimstone them, and then expect to buy more bees with the money received from the sale of honey saved by not wintering those bees.

During these after-war times—when all kinds of shipments are badly congested—the Northern beekeeper should depend mainly on wintering just as he has been doing for years back, and use bees from the South as so much increase. When the price of honey is so very high—20 cents and more—he can better afford to run his wintered-over bees without increase than he can to divide them and run for honey and increase both. The

of fun and health going and coming, and learning something about increase in the South. If he succeeds he will be that much ahead.

Bees by Mail.

Now that bees without combs in package form are admitted to the privilege of parcel post under certain restrictions, it will be possible to get bees by mail in small lots. At all events, the express companies will have a warm competitor in Uncle Sam. This one fact will have a tendency to keep down express rates on bees; but it should be clearly understood, however, that the postal authorities assume no responsibility for safe arrival of bees. However, in many and

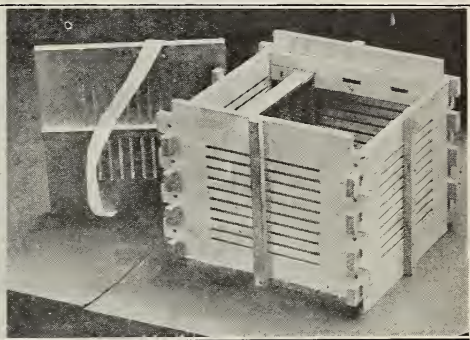
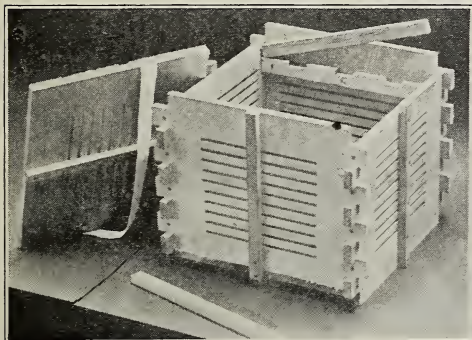


Fig. 4.—A package that Uncle Sam will accept for shipping bees by mail. It is made up of sawcuts slightly less in width than $\frac{1}{8}$ inch. These sawcuts on all six sides take the place of double wire screen, which is also permitted in a second type of cage.

time will never come when one can afford to extract all the honey from his bees, brimstone them, and buy more bees.

Another Possibility.

The beekeeper can, perhaps, afford to extract nearly all the honey from his combs, and, as soon as the bees have stopped breeding, shake them into combless cages, send them South by express, follow them to destination on the same train, unload them, and let them loose on the combs or frames of foundation at the receiving point. He can then run them for increase or honey or both. In April he can cage the queens, and, as soon as brood hatches, ship the original colonies and their increase to the North.

I am not so sure but one could take his regular truck, and, before the roads break up, shake his colonies into two-pound cages, make up a truck-load of three or four hundred, and arrive at some point in the South about a week later. In April or May following, the process could be reversed.

I hope that no reader of mine will enter upon either of these propositions on a large scale. Let him feel his way carefully. If one has a little Ford, let him try out the proposition of loading a hundred packages, putting them on a trailer, or, better, in a truck body made especially for the Ford. He could, perhaps, afford to lose a hundred packages and charge up the loss to a barrel

perhaps most cases the shipper will guarantee safe arrival. If the postmaster at destination reports the bees dead or in bad order, and signs a certificate to that effect, the

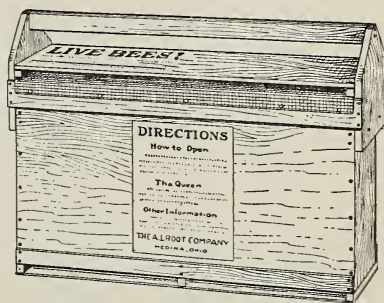


Fig. 5.—This is a package that has been used with the greatest success in sending bees clear across the continent without combs but on frames of foundation. Experience from the tests already made shows that on long distances the bees will draw out the comb, and the queen will lay eggs. In numerous instances we have had drawn comb and young larvae on arrival at Medina. See page 532, September Gleanings.

shipper, in my opinion, should replace. If the shipper is not made responsible for arrival in good condition, he will be liable to become careless.

MOST HONEY FOR THE MONEY

A Great Difference in Percentage of Honey Received by the Purchaser Because of Size and Kind of Package

By H. H. Root

DURING times like these when it is the certain duty of us all to economize in the use of food, it is almost as important to effect a saving in

the cost of the package and in the labor of packing as to make a saving in the food itself, for providing the package to hold the food is a problem nearly as serious as that of providing the food. Those who are interested in making the shrunken dollar go the farthest will do well to consider the effect of the size of the package on the cost of the food contained in that package. While practically all foods are involved, since we are interested primarily in honey, we will confine our attention to the cost of several different sizes of packages for holding the product of the bees.

The accompanying table gives a record of the costs of honey in glass jars from three ounces up to two and one-quarter pounds, and in tin cans from the two-and-one-half pound size up to the gallon. Each is considered in lots of one thousand, in order to have a uniform basis for comparison. Since the costs of these packages are changing almost constantly no importance can be attached to these figures save in their relation to each other. In other words, it would be unsafe to base an estimate on cost figures for any one size of package today. The proportionate cost of the packages and labor for packing, however, re-

mains about the same. The honey is all figured at a uniform price of nineteen cents a pound.

A little study of this table, especially of the percentages in

the last column, shows conclusively how the proportionate value of the honey to the total cost of the package increases materially with the size of the package. In the smallest-sized jar the honey itself represents only 59 per cent of the cost of the package. In the case of the two-and-one-quarter-pound jar the honey makes up 86 per cent of the total cost of the package. The proportion is still greater in case of the tin cans. It is interesting to note the small cost of the labor and overhead expense in case of the five-ounce jar. This is partly due to the fact that this jar was handled in such large quantities that the labor was greatly simplified, but primarily to the fact that no label had to be put on, the cap being lithographed.

In the accompanying diagram the shaded portion represents the value of the honey compared with the total cost of jar or can. In other words, since in the smallest-sized jar the cost of the honey is 59 per cent of the total cost, therefore the shaded portion is just 59 per cent of the whole diagram, the unshaded portion representing the cost of the package, the labor, overhead expense, etc. As the size of the jar or can increases,

Cost Analysis of Various-sized Honey Packages.

1	2	3	4	5	6	7	8	9
Size of jar or can.	Pounds of honey.	Cost of honey.	Cost of jar or can.	Cost of labels.	Cost of labor and overhead expense.	Total cost of package.	Total cost of package and honey.	Per cent of cost of honey to total cost.
3-oz. jar	187.5	35.62	16.12	.44	8.39	24.95	60.57	59.
5-oz. jar	312.5	59.37	21.04	...	3.81	24.85	84.22	70.
6-oz. jar	375.	71.25	24.24	.44	7.70	32.38	103.63	69.
8-oz. jar	500.	95.00	31.96	.44	7.55	39.95	134.95	70.4
14-oz. jar	875.	166.25	36.34	.65	7.69	44.68	210.93	79.
2¼-lb. jar	2250.	417.50	46.38	1.65	19.04	67.07	484.57	86.
2½-lb. can	2500.	475.00	45.66	2.43	21.30	69.39	544.39	87.
5-lb. can	5000.	950.00	63.50	2.43	32.00	97.93	1047.93	90.6
½-gal. can	6000.	1140.00	93.50	1.37	33.60	128.47	1268.47	89.
1-gal. can	12000.	2280.00	170.00	2.03	63.33	235.36	2515.36	91.

Costs of various-sized packages of honey in thousand lots. The honey is all figured at 19c a pound. The first column, as indicated, gives the size of the glass jar or tin can. This figure multiplied by 1000 (divided by 16 in case of the first five items) gives the number of pounds of honey in one thousand jars, as in second column. This multiplied by 19 gives the cost of the honey alone as in third column. The fourth column contains the cost of the jars or cans, including the caps or covers. The sixth column contains the cost of the labor, also cost of power, heat, and other overhead expenses. The seventh column is the total of columns 4, 5, and 6. The eighth is the total with the cost of honey added. The percentages in the last columns are obtained by dividing the cost of the honey in column three by the total cost in column eight.

the proportionate cost of the package (including material and labor) decreases, and the proportionate value of honey increases. The increase is fairly regular, altho the percentage falls back a little from what gallon and gallon tin cans. This is due to might be expected in case of the one-half

the small screw-cap opening, making the labor of filling proportionately greater.

This may not be interesting to all beekeepers; some are concerned only with the problem of production. And yet, the proper disposition of a crop ought to be just as interesting as the production of that crop.

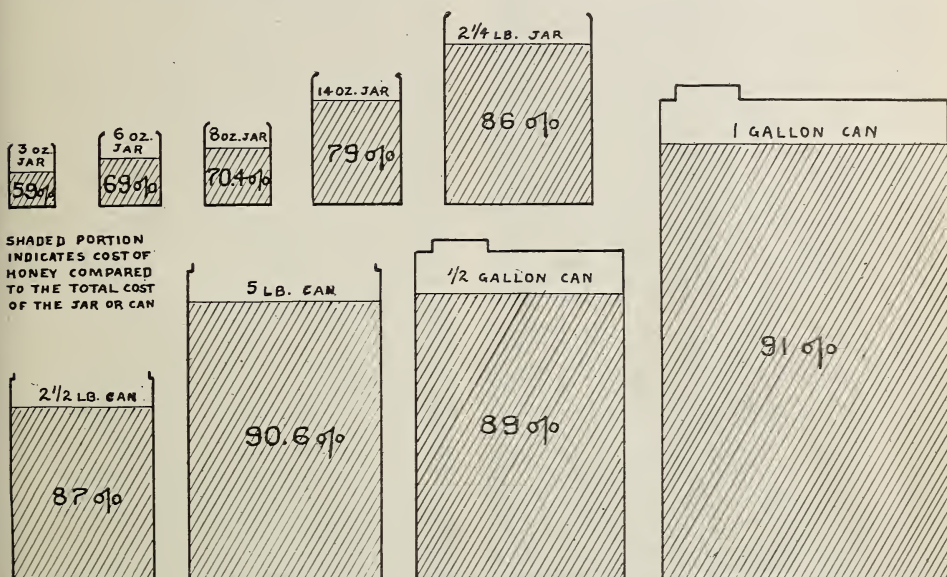


Diagram showing relative value of honey and container. The shaded part represents the value of the honey (percentage of honey value marked) while the unshaded parts represent the proportional cost of the container. Note how very much larger is the proportional cost of the container in the small sizes.



THE means of distribution of pear blight, or fire-blight, or twig-blight, as it is variously called, has long been a mystery and still remains more or less of a mystery, in spite of the fact that many scientific articles have been published concerning it. Recently, a number of articles have been written upon the subject the sole object of which seems to be to connect up the honeybee as the main culprit in spreading the disease in our orchards, and some of the results of experiments, which have been conducted along this line, would seem to favor this theory; yet, when all the facts are connected up, the bee usually has the best of the argument. Many people are prone to ignore facts and accept theory instead. For example, there are good orchardists who have so much faith in the theories which they have heard presented, or which they have

BEEES NOT PROVED GUILTY

Careful Review of the Known Facts Does Not Warrant the Conclusion that They Spread Fireblight

By Prof. J. Troop

we have on the subject is circumstantial, and that is very often far from reliable. It is well known that bees visit apple and pear blossoms for the purpose of obtaining pollen and nectar, out of which they make food for the young bees, storing the surplus honey in the hives for future use. Soon after the visits of the bees to the flowers, possibly indications of the blight begin to show themselves; therefore, according to the reasoning of some, the bees must have introduced the germs, regardless of other possible causes.

This reasoning is very much like that other fallacy; viz., that bees destroy ripe fruit, because they have been seen working like troopers gathering the juice and carry-

read about on this subject, that they would not allow a bee in their orchards, if it were possible to keep it out. The fact is, about all the evidence

ing it to their hives. Wasps and English sparrows, the real culprits, were not caught at it; hence they go scot-free. Unless our theories will coincide with the facts in a case, they should not be given too much prominence.

At the annual meeting of the American Association of Economic Entomologists held at Columbus, O., in December, 1915, Professor Gossard of the Ohio Experiment Station gave the results of a series of experiments, in which he showed that the germs of fireblight (*Bacillus amylovorus*) would remain alive in honey as long as 47 hours, which would give ample time and opportunity for the bees to carry the germs, which they might have attached to their legs or proboscides, to the apple or pear blossoms during their periodical visits. He says: "A fresh culture of *B. amylovorus* was inoculated into a tube of unsterilized honey and incubated there from 4 to 47 hours. At the end of the 4th, 28th, and the 47th hours, inoculations were made from the infected honey directly into the tips of apple shoots. These inoculations gave 84, 64, and 52 per cent of infection, respectively, as against 0 per cent, in the checks kept for comparison. These tests prove conclusively to us that the blight organisms, in honey, can remain sufficiently virulent for 47 hours to produce infection, with the extreme time-measure of virulency probably not reached. Tests of this kind were made with fresh apple honey and also with well-ripened honey taken from the hive in mid-summer, and the results were substantially the same."

Quoting further from the same article, he says: "It is evident from these results that the formic acid of honey is not immediately fatal to the blight organism, and, while we may guess, from the fact that we could get no infection after a certain limit of incubation, that the bacilli simply survive for a time without multiplying, we are unable to reject entirely the possibility of their multiplying in the comparatively raw nectar when it is first carried into the hive and has undergone but little of the curing process. Anyway, we believe we have proved that if one bee carries 100,000 bacilli into the hive one day, that on the following one or two days, each of 1,000 bees has the possibility of carrying a considerable fraction of 100 virulent bacilli out to fruit blossoms, because practically all the bees in the hive are at work during the night curing the honey. This would seem to go a long way toward explaining the wholesale infection that occurs in the latter part of the blooming period. However, it must be remembered that this surmise, as yet, rests upon inference alone."

These results would be very conclusive if it were not for that little word IF. The germs of the disease may be placed in honey and kept alive for some time, but there is no evidence to show that the germs were actually carried into the hive by the bees,

nor that any were carried out by them on their periodical visits to flowers. It seems to me that one, and perhaps the most important, point has been overlooked in this discussion, or else the writers have taken it all for granted; and that is, granting that the bees do get the bacillus in honey, or from some other source, and carry it to the flowers which they visit, and so inoculate the nectar, how do these germs get into the circulation of the sap? Does the nectar furnish a medium in which they will grow and penetrate the epidermal cells, and so get into the circulation, without further assistance, or is it necessary for them to be artificially introduced by some foreign agent? Almost every orchardist knows from experience that he can inoculate a healthy branch with the blight virus by the simple prick of a needle which has punctured a diseased branch, but the needle must actually puncture the bark in each case, in order to be effective. Now, the bee, in securing the nectar, does not break the skin or epidermis, but simply reaches down and sucks up the nectar. How, then, is it going to introduce the virus into the tissues of the branch, even tho it may have it on its proboscis at the time of visiting the flowers. If, as some authorities have supposed, the nectar is secreted by glands which have no epidermal protection, in other words, which have a direct connection with the tissues and circulation, it is easy to see how the virus might enter the circulation thru the nectar; but, so far as I am able to ascertain, no actual demonstration of that fact has ever been made, and until it is made, there must remain a doubt in the minds of many as to whether the bee is responsible for the trouble or not. In this connection, I quote from an article written by Prof. J. H. Merrill, Assistant Entomologist, Kansas Agricultural Experiment Station. He states that, "before the blight can be transferred from flower to flower some agency must transfer the bacteria from the canker to the blossom. The bee would take no part in such a distribution as it passes directly from flower to flower without alighting on the branches, and thus it is hard to conceive how the bee could in any possible way transmit the bacteria from the canker to the flower." He further states that, "the wind probably plays little or no part in the dispersion of the bacteria."

In an article in Science, Nov. 1, 1918, entitled "Pear Blight Wind Borne," the conclusion is reached from facts given, "that there must have been some agency of dispersal other than insects, and that insects were not even of primary importance as carriers. The only tenable hypothesis is that wind was the chief agent of transmission." Here we have just the opposite conclusion of that expressed by Professor Merrill. It is evident, therefore, that there is still room for investigation along this line.

But we all know that the apple aphid, *Aphis pomi*, makes its appearance quite

(Continued on page 60.)



FROM THE FIELD OF EXPERIENCE

STAGE FOLK, TOO, ARE BEEKEEPERS

How Hanson & Drew Enjoy Their Vacations Keeping Bees in Michigan

"Stage folks," too, can enjoy bees and succeed with them. In fact, their usual summer vacation period just nicely meets the time requirements for caring for the bees. And what a joyous good time my husband and I have, caring for our pets in the good old summer time!

Our vacations are spent at East Jordan, Mich., in a real bee country. We joined the Michigan Beekeepers' Association four summers ago while attending a foul-brood demonstration at Fuch's apiary in Wolverine, Mich. F. Eric Millen of the Michigan Agricultural College showed us how to get rid of foul brood. We had played Cheboygan the previous week, and beekeeper L. S. Smith there told us of the foul-brood demonstration to be held. We met Mr. Smith while in Cheboygan, and he was more than nice to us, exemplifying the generous spirit of the beekeeping fraternity in general. He invited us to his house on Sunday, when we had a very pleasant visit and talked bees and bees and bees. That was our first season with bees then. We had just bought two colonies about two months previously, and he gave us a lot of most valuable information.

This year we began packing our bees Sept.

12, and used Ira Bartlett's quadruple winter cases. Mr. Bartlett could not furnish us as many cases as we needed, so we made three more ourselves. We have 20 colonies of bees, and it took us five nights to pack. We packed four hives (one case) each evening, and got them packed Sept. 17. The equinoctial gales arrived in full force Sept. 18, and raged for several days; so we were fortunate in getting the bees packed just when we did. We stayed for the Charlevoix County fair, and took first and second prizes for comb honey. We left that place Sept. 28, and hope to return about May 12, next year. That was the date we returned to our Michigan play-and-work ground last year. It seemed just the right time to unpack the bees.

When Editor Root visited East Jordan last summer I think that Ira D. Bartlett told him of one of our hives that had been turned upside down during our winter's absence. It had evidently been that way all winter long. Mr. Bartlett righted it for us previously to our return in May (about two weeks before our arrival), and the bees still lived. The queen came thru in excellent condition, altho there were only about three frames of live bees found upon examination; but we frequently gave them more brood, and that hive produced four supers of comb honey. It was a colony that originated in a late swarm and was packed in a single packing case a year ago. I have



Mr. and Mrs. John T. Carlisle, stage artists, and their apiary in northern Michigan.

FROM THE FIELD OF EXPERIENCE

marked this hive by an X. It is beside the apple tree.

My husband and myself are known to the stage as Hanson & Drew—and we are proud to call ourselves beekeepers.

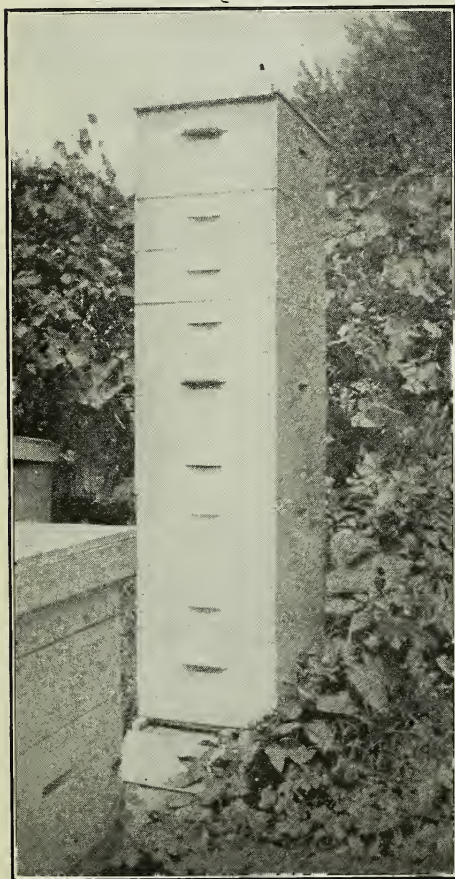
Mrs. John T. Carlisle.

Detroit, Mich., Nov. 18.

A JERSEY SKYSCRAPER

A Beekeeper Who Believes That the Honey Crop Can be Doubled

While this part of New Jersey is not an extra-good honey country, yet this year has been exceptionally good, our usual five-weeks' flow from the middle of May to the middle of June being reenforced by an un-



This colony filled two large supers after this picture was taken, making five large and five small supers besides the brood-chamber, making a hive $7\frac{1}{2}$ feet high (10 frames), equal to an eight-frame hive nine feet high.

usual gentle fall flow lasting two months. I am, therefore, sending a photo showing what a happy combination of locality, good season, good queen, good hive, and good beekeeper can accomplish when only a few colonies are kept.

A few years ago I had boats to let, and two fishermen from the city hired a boat for all day. They had all kinds of fancy lines, poles, hooks, and bait, and during the day they caught two small fish. That afternoon a boy from the town, with a sapling for a pole and a piece of white salt pork, caught a nice mess of fish in a couple of hours. What made the difference? That boy is now Harry Edsall, the owner of the hive shown in the photo, which produced 400 pounds of honey this year, while the colony of his next-door neighbor produced less than 10 pounds. What made this difference? The fisherboy used a bait that could be easily seen by the fish; put it in a part of the pond where there were some fish at that time of the day, and moved it around so the fish could not see what it was, and they grabbed it because it moved at just the right speed. The beekeeper put his bait just where he wanted the honey, and kept moving it just ahead of the demand of the bees. He watched the bees and knew what they were feeding on, and knew when the honey flow would begin and when it would stop. Then he knew from sad experience the necessity of a good queen, for two years before he had ten good colonies till European foul brood struck them, and then he had only two. So his queens are now all Italians from the best breeders.

As for the hive, just look at it and remember that the bees had to build half the comb from sheets of foundation. The hive is a regular standard hive with three full-depth supers and five shallow supers. Moreover, the colony has filled two full-depth supers since the photo was taken; therefore, in all there are five full-depth, five shallow supers, and one brood-chamber, making a hive $7\frac{1}{4}$ feet high, or the equivalent of an eight-frame hive nine feet high. Notice how level the hive is—no danger of falling over, and no props needed. The two next-best hives had 150 pounds of honey each. Can it be possible that a good queen can make all the difference between 150 and 400 pounds? If so, then this queen (honey at 25 cents) was worth \$62.50 more than any of the others, just as a honey-producer, in one year.

I feel sure that the honey crop of the United States could be doubled if all the beekeepers would get the very best queens, and add new ones every year. Let all despondent beekeepers troubled with foul brood take heart and get the very best Italian queens they can. In the last two years I have lost half of my bees by Euro-

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pean foul brood, and this year I bought 36 queens for 30 colonies. Hereafter I expect to get 50 per cent more honey each year because of the experience I had with foul brood. So, cheer up, you European foul-brooders. Buy good queens and be happy.

Hammonton, N. J.

C. E. Fowler.

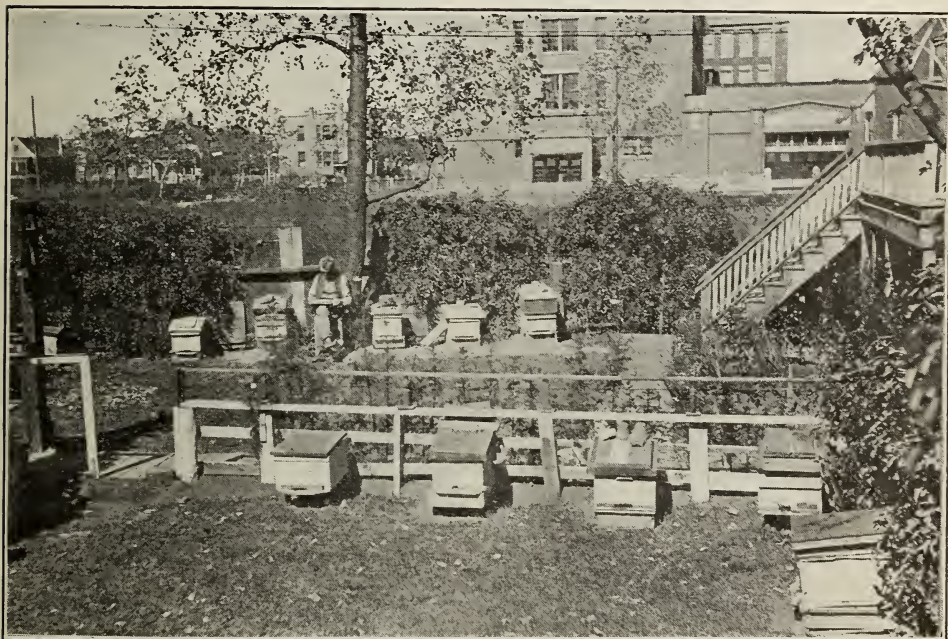
BEES KEPT IN A CITY FOR YEARS

How a Trade Worker Has Loved and Kept His Bees Efficiently

My father, T. O'Donnell, is now 71 years of age, and has kept bees since he was about 15 years of age, inheriting the fondness for them from his father in Ireland, who also acquired his knowledge from his parents be-

distance (not more than 100 feet) at which they are located from a city school of 1,300 pupils, my father's home being at 815 So. Kildare Ave., Chicago. We have never had a single complaint from the school or the neighbors.

Scores of beekeepers, some amateurs and some very successful, residing within a radius of 100 miles from our home will recognize this apiary as the one which served as a "hotbed," as it were, for them to draw upon after one or more failures in their initial attempts to master the art of beekeeping. These men, no doubt, will give testimony to the fact that the old gentleman in the picture gave them many good, common-sense pointers to help them attain the success they now enjoy.



Mr. O'Donnell's apiary which has long proved a success altho kept within the city limits of Chicago.

fore him. Altho working at a trade until one year ago, he has had as many as 52 colonies of bees, and seldom if ever lost a colony thru outdoor wintering. Every fall he has pursued the practice of filling the supers with dry leaves, hay, or straw, and placing them over the hive, also regulating the entrance by means of movable blocks to suit all changes of weather conditions. The hives are packed around the outside with hay and stand on their summer stands for the winter.

Some knowledge of the quietness of the bees can be gained by observing the short

Bee-veils and gloves are seldom used in our apiary, and it is interesting to know that about 90 per cent of our swarms have been hived by my mother while my father was at work.

It has always been my father's rule never to mind how much honey he gets, but how well are the bees supplied with it for their long winter rest. This only goes to prove that he has a natural fondness for bees, always with an eye to their comfort and progress, rather than the financial gain to be acquired thru them.

Chicago, Ills.

John C. O'Donnell.

FROM THE FIELD OF EXPERIENCE

THE FIRST WAX-RENDERING—OH!

The Man's and the Woman's View or this Interesting Calamity

Even Mr. Webster must have passed thru the vicissitudes of the first wax-rendering, because in his dictionary he describes wax as "A thick, viscid, tenacious substance, excreted by bees from their bodies and employed in the construction of their combs; its native color is yellow, and it has a peculiar smell resembling honey, which is derived from the honey deposited in the cells." Mr. Webster also speaks as follows of foreign substances in wax: "When bleached and freed from impurities, wax is white, brittle, and translucent in thin segments, and has neither taste nor smell;" but he does not tell us of what those impurities consist. That seems to have been the original discovery of the senior member of a recently established domestic firm of beekeepers, details of which may be found set forth in his diary under the heading, "Wax Rendering," tho the diary of the junior member also contains much valuable data.

His Version.

"Tuesday, October 12, 1915.—When old combs are broken for melting, there is so much dirt mixed with the wax that there is no use trying to separate it, unless the wax is tied up in a piece of strong cloth. After the free wax has melted and floated to the surface of the water, the mass in the sack should be put under pressure. This will drive out more wax, which does not float by itself clear from the mixed dirt. This dirt is composed of cocoons, quite a lot of dead bees, more or less propolis, and black stuff that I do not know how to name. When I melted the wax from some old frames I must have had three or four pounds of old comb, out of which I secured three-fourths of a pound of wax, and I melted it three or four times before I could get it free from dirt, altho the wax being lighter rises to the surface of the hot water and holds the dirt underneath it. When the mass hardens, the wax will be found fairly clean, but adhering to the bottom of it will be the dirt which can be broken off, in a measure, altho some particles will be incorporated in the under side of the wax cake.

"Old combs should be melted in boiling water to prevent the wax from burning, and the work should be done in an outhouse, and old clothing should be worn, because wax is very dirty and clings to clothes or leather or anything else it touches, but it can be washed off with gasoline or benzine.

"Since old combs yield not to exceed 25 per cent of their weight in wax, it does not pay to spend one's time in rendering them, unless one has from 50 to 100 pounds in combs and an abundance of free fuel, since

a lesser amount would not pay for the time and expense.

"Wax that is almost pure can best be melted in a double boiler."

Her Version.

"Tuesday, Oct. 12, 1915.—Declared a holiday for the senior member to take Cousin Sue, who is to remain another week, on a trip thru the valley, and washday for me, because I took her out yesterday. S. M. (Senior Member) rose at 6 o'clock and donned his paint clothes. It looked suspicious, and I reminded him of the proposed trip. He said, 'Plenty o' time; car leaves at 10:40,' and disappeared.

"8:30. Sweet sickening odor from kitchen. Investigated. S. M. in preoccupied mood, stirring a curious black mixture in my new granite kettle.

"8:45. Smelled gas. Investigated. Kitchen vacant. Mixture boiled over; flame extinguished; streams of black liquid trickling down the sides of stove to floor. Enter, S. M. Sulphuric fumes mingled with aforesaid odors, as he hastily emptied portions of mixture into large blue enamel boiler, re-lit gas and added more black material to both boilers. 'Rendering wax,' he volunteered as the sweetish odor pervaded the entire house.

"9:00. A third cooking-vessel brought into action.

"9:30. Mixture poured into my jelly bags and squeezed. Bags burst. Mixture returned to boilers for second melting.

"10:00. Cousin Sue in best black, patiently waiting. S. M., 'the world forgotten,' and, except for his immediate family, 'by the world forgot,' put the teakettle over the remaining burner. Remonstrated. Abstracted answer, 'in a minute.' Odor more nauseating. 'Men are all like that, just little boys when they are interested,' comforted Cousin Sue, from the wisdom of 70 years.

"10:45. Cousin Sue sewing strong canvas bags for wax. Car tooting farewell in the distance.

"11:00. Mixture boiled inside canvas bags (third time). Thin yellow coating on surface of water. Bags removed, pressed, and hung in picturesque rows on veranda railing.

"11:30. 'When do we eat?' from S. M., triumphantly skimming a few remaining flecks of yellow from the surface of water in boilers. 'No luncheon has been planned, and no place to cook it if it had been. You two were to lunch at the Inn,' I reminded him. And urged by the pangs of hunger, he set the boilers aside, made a swift toilet, called a jitney, and with Cousin Sue, caught the 12:10 interurban. Another proof that a man's stomach is a sure route to other sensibilities.

"4:30 P. M. Order restored. Results:

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gas consumed, 80 cents; three boilers scrapped, about \$2 secondhand valuation; jitney fares, 50 cents; to say nothing of the loss of my jelly bags, all for a cake of wax that one could buy for 20 cents. Of course, that was not all. There was sufficient to wax the kitchen floor, had not the diabolical stuff been carried on our shoes to other parts of the house.

"My old doctor tells me there is nothing so restful to the nerves of a harassed woman as scrubbing. That may be true; but just between us, Old Diary Book, I have ordered the plumber to extend the gas pipe into the basement and attach thereto a gas plate."

These records disclose the fact that a wax-extractor was purchased for the remainder of the wax-rendering. The season's crop amounted to 20 pounds from the melting of old and broken combs, and the cappings from 32 combs of honey—in all, 320 ounces. Allowing $\frac{1}{2}$ ounce each for the 32 combs extracted, or 16 ounces, would leave 304 ounces from 144 old and broken combs, or, 2.19 ounces each.

It is an interesting fact that difficulty was experienced in removing from the hives old dark-colored combs for melting, because the queen invariably used them for brood-rearing in preference to new clean fully drawn combs. The combs were finally removed by placing them over queen-excluders until the brood hatched.

Despite the dead bees, cocoons, propolis, and the dirt that the senior member was at a loss to name, the residue of the old combs, accumulated from the melting in the solar extractor, proved to be an excellent fuel. It makes a quick hot fire. It gives a flame like burning fat. It is especially useful as kindling, and while still damp from the wax-extractor, this mixture, known as slum-gum, may be put in small wooden boxes, pressed down and dried in the sun, and later chopped out in chunks when required for use.

So, even in the winter months, the cheerful glow from the family hearth is a continual reminder of one's erstwhile summer friends, the Honeybees.

C. D. Stuart.

Los Gatos, Calif.



IS IT A SAFE PRACTICE?

A Mild Treatment for American Foul Brood That Has Proved Successful

In 1916 I wrote you that I had cured a colony of bees that was in the incipient stage of American foul brood, by cutting out the cells that were diseased. These cells were limited to three and all on the same comb. You wrote me to watch results next year, as I might not have removed all the infected honey, and the disease might break

out again. However, the cure was perfect.

Now, I am going to tell you another one that some of your most severe critics may object to before investigation.

It is generally conceded that American foul brood is the most dreaded of all the diseases that bees are subject to, not that it is hard to get rid of, but valuable combs and the benefit of that particular colony as a honey-producer for that year are lost. It certainly disheartens one when he finds a few cells diseased in a splendid colony of bees, thinking the only remedy is to shake them on foundation and destroy all combs in that hive. I am now going to tell you how I have absolutely cured four colonies diseased with American foul brood, with the loss of only the individual combs diseased, and I still retained the full use of these colonies as honey-producers.

Within a radius of one mile from my apiary there are many colonies of bees in lots of from one to five, about all diseased with American foul brood. Thru the kindness and vigilance of the State entomologist, we got busy and made a clean-up, and I had to keep an eye on my bees almost daily for a time to see that no disease was present. In early June I discovered that four colonies out of twenty were diseased, and, as the infected cells were confined to three combs each in two hives, and two combs each in two hives, I decided to apply the "nursery" method. This consisted in placing these diseased combs, bees and all (being sure not to take any of the queens), in an empty hive. This I did about sundown with as little fuss as possible. I then moved all the combs in the former diseased colonies close together, put in dummies on the sides, and closed up the hives. The next day the working bees of the newly made diseased hive went to their respective homes; but there were enough young bees left to take care of the unsealed larvae, and within a few days this nursery hive was running over with young bees. As soon as all were hatched, I shook them on full sheets of foundation, and the trick was finished. The old colonies went right ahead as if nothing had happened to them, and piled up a nice surplus, and in none of the colonies did the disease reappear.

I have just finished taking a nice shallow super of honey from my nursery colony, which, I am sure, if added to the surplus I have taken from the old colonies, would bring the average up to normal. I allowed this nursery colony to rear a queen to suit themselves, and they have done a good job of it, for she is now laying well. In fact, this nursery colony is one of the very best in my apiary.

What have I gained by this "nursery" method? Let us figure a little. I lost only 10 diseased combs, instead of 10 diseased

FROM THE FIELD OF EXPERIENCE

ones and 30 that were not diseased, or a total of 30 saved as against 40 lost. I have extracted a nice lot of honey from each colony, including the nursery colony, and gained one colony of bees. Had I applied the old method of shaking in June, what would I now have? I would have four colonies of bees that might have to be fed to get thru the winter. J. F. Knight.

Indianapolis, Ind.

[Some of our readers, especially foul-brood inspectors, might question the advisability of publishing this method of cure, for the simple reason that, while the plan is all right for experts, the average beekeeper, not carrying out the directions properly, would spread the disease rather than hold it under control. We were a little undecided what we should do ourselves. On referring the matter to Dr. Miller, he said: "The careless man is not likely to try it, for he will not discover the disease till well started; and, if he does try it, he can at the most only prolong the disease. The benefit to the careful man will outweigh the harm to the careless one."]

We believe that Dr. Miller is right, and therefore we are submitting the plan to the public. We may say that this has been tried before by some good beekeepers, and it has given excellent results. While it is true that the disease may appear in some other combs, yet, if the process is continued, American foul brood will be eliminated with little or no expense. It should be understood that, while this plan is good for a few stray cells that may appear, it will be wholly inadequate where the colony is badly infected. Nothing short of shaking on frames of foundation will suffice.—Editor.]

NOVEL MARKETING IDEA

Do the Work of Taking Comb Honey Out of the Super in the Presence of Customers

To retail a bit of comb honey, take an untouched super to a big factory that employs a lot of hands, and open it at the lunch hour. The work of getting out the sections will draw the crowd; and the business of breaking the propolis, a visible proof that you are opening the original package sealed by the bees themselves, helps give the crowd confidence that this is the real, unadulterated stuff. Women are best customers on the whole, tho men are more apt to take more than one section at a time. Most of what is bought will be bought to take home, but some will be taken for eating with lunches on the spot.

In such sales you naturally do not scrape the sections. Purchasers don't object to propolis under these circumstances, when they see for themselves that it is the seal

of the bees' packing and not an accidental defilement by human hands. At the same time, of course you sell better by making a lot of interesting talk about the bees and their work, and among this talk it is as well to get in something about the antiseptic varnish with which the bees cover all cracks in which germs might lodge. "Antiseptic varnish" is not only a better name for selling purpose than bee glue, but is really more truthful; for it is for the purpose of antiseptic varnish that the bees use it, not for gluing; the gluing effect comes incidentally, just as the same result comes from our own varnishes and paints. That we name it "bee glue" is a piece of the conceitedness of the human race, talking as if the important aspect were that which concerns our personal convenience. Give your bystanders scraps of propolis the size of an apple seed or smaller, and tell them to rub these between their fingers and then smell the delicious scent of the woods on their finger-tips.

The fact that you don't scrape the sections nor furnish cartons enables you to go just a cent or two below the grocer's price without being really a price-cutter; but I am not sure of your needing to do it, for you have a good selling proposition without any discount. The question will depend on your personal temperament. Don't go a nickel below the grocer. It is doubtful whether to make a difference in price between fancy sections and No. 1; but, if you have sections quite imperfectly filled, you give them a discount price proportioned to the amount of honey in them, and then they go off all right, especially to the customers who buy for eating with lunch.

Obviously this is primarily a method for the backlotter who can take this super to the factory where he works every day, where personal acquaintance increases everybody's confidence in his reliability, and who can leave the unsold part of the super there to meet the requests that will keep coming day after day from those who want another section, or who did not buy at first, but have now heard from somebody how good it was, and perhaps have been given a spoonful to taste. But I don't see why the large producer, if he has section honey, should not follow this method if he has business in town at such an hour as makes this convenient for him. If you sell at twelve and a half cents above what the wholesaler would give you (which is a low estimate for this year), and if in 60 minutes you sell a dozen sections (which even a bad salesman ought to do in his first attempt by this method, unless he had struck a very unlucky factory), that is \$1.50 for an hour's pleasant work, and you build up the public demand for honey.

Stephen T. Byington.

Ballard Vale, Mass.

A BEEKEEP-
er who
wants to
rear a few
queen-cells for
his own use
sometimes puts
in the center of
a colony having
a choice queen a

frame filled with foundation. After this is drawn out and filled with eggs, it is given to a queenless colony to rear cells upon. When the cells are completed it is annoying to find often two cells at one point, but on opposite sides, only one of which can be saved. A. Chenoweth gives in the American Bee Journal a way that nicely overcomes this difficulty, altho he does not give it for that special purpose. Take two sheets of foundation, place these together with two sheets of tissue paper between them, cutting the paper a little smaller than the foundation and pressing the edges together. When your cells are ready to cut out, trim off the edges of your comb and the two sheets will readily separate, so there will be no cells on opposite sides of the same comb.

* * *

A California correspondent writes: "On page 666, November Gleanings, you say, 'Breed from the best; kill all queens that fall below the average.' Now when is a queen poor?" He goes on to say that some queens start out with a rush and later slack up, while others reverse the process. Well, to decide whether a queen is poor or good, you must not judge alone by what she does in any one part of the season, but by what she does—rather by what her workers do—in the whole of a season. From that it follows that you cannot judge by what she does the year in which she is born, for the first part of that season's work is done by the worker progeny of her predecessor. But in the next year keep tally of every pound of honey taken in the whole season, and if it falls below the average you may count her a poor queen.

* * *

M. S. Philipps writes: "It seems that those skyscraper hives would cause the bees to waste a lot of valuable time going up from the entrance to the top super of honey, for, as all beemen know, the bees will stop to finish all frames of honey by sealing over with wax parts of combs that are unnecessary. I believe that better results can be had by taking sealed brood from those extra-strong colonies and building up the weaker ones; besides, it is possible to have colonies that are too strong, the bees getting in one another's way by overcrowding. It must take a loaded bee a long time to travel thru a crowded hive up to the 4th, 5th, or 6th super." It certainly is good policy, under right conditions, to draw brood from strongest to build up weaker, but when skyscraping begins it is supposed that all are already brought up so that there are

STRAY STRAWS

Dr. C. C. Miller

no weak to help. Isn't it a mistake to think of a field bee carrying its load to the 5th or 6th super? If it carried honey there, wouldn't it also carry pol-

len, and do you ever find pollen carried to a 5th super? If I am rightly informed, the field bee dumps its load into cells in the brood-chamber, and then the young bees take the thin honey into their sacs and evaporate it by thrusting it out with their tongues, and while doing that they may just as well be promenading up into the top stories to deposit their loads there. I've never seen any striking proof that a colony was too strong.

* * *

I wonder if I couldn't do something toward bringing agreement in that little disagreement on page 729. Mrs. Demuth says a day came in late fall when every bee except the queen seemed to fly. Mr. Crane says, "I watched very closely last autumn, but saw no day when it looked as tho half of the bees flew out;" and the editor says it would depend on the lateness of brood-rearing. It might be this way: It so happened that in Mr. Crane's region there were a number of flight-days at frequent intervals, so that at no time did all the bees feel the need of a flight: in Mrs. Demuth's region it happened that for two or three weeks there was no flight-day, and when a warm day came all wanted to take advantage of it. That is, the longer the confinement the more bees to fly. Another year conditions might be reversed.

* * *

"Can Bees Hear? Who Knows?" heads an item by A. I. Root, page 739. One day, years ago, a swarm was beginning to enter a hive, if I am not mistaken returning to its own hive, but I wanted it to enter another hive I had placed for it. I moved the old hive to a new place, some of the bees of the swarm still calling loudly at the entrance, but in a little while the swarm found it, and began to enter. Quickly I set the hive on a wheelbarrow and started it to traveling about. So soon as it was on the move the swarm left it, but if I stopped it was not long till the swarm found it. I don't remember the outcome, but I know that the swarm found the hive every time I stopped. It could hardly be that the bees found the hive by sight, for we know their hive is lost to them if at any time moved a very few feet; and if they didn't hear the continuous call at the entrance how did they find the hive?

* * *

Iona Fowls does not agree with me that there is less danger of bees starving in winter in large hives than in small ones, page

743. I wonder, Miss Fowls, if we are talking about the same thing. I suspect you are talking about your bees under your management, in which case I agree with all you say, including your conclusion that "good colonies, if suitably packed, will winter on even seven frames," and I should hardly quarrel with you if you made it six frames, always supposing they were six heavy frames of honey. But when I am asked, "Is a ten-frame hive better than an eight-frame hive? it is not an experienced beekeeper like you who asks the question, but a beginner who is likely to leave the bees to their own devices in making preparation for winter. Suppose he has 50 colonies in ten-frame hives and 50 in eight-frame hives. It is pretty safe to assume that at the approach of winter each of the larger hives will have two frames of honey more than the smaller ones. In the larger hives the bees may become stranded at one side of the hive and starve, with plenty of stores at the other side. There is much less danger of this with the smaller hives. In the smaller hives the total amount of stores may not be enough to prevent starvation. There is much less danger of this with the larger hives. When a good colony dies in a ten-frame hive, leaving stores out of reach, I think it is the exception and not the rule. When a colony in an eight-frame hive has insufficient total stores, it is the rule without exception that it dies. When I had ten-frame hives it was a rare thing that a colony starved leaving honey in the hive. With eight-frame hives I have had seasons when, without any attention on my part, every hive was so well filled that not a colony was in any danger of starvation; and I have had so poor seasons, especially so poor in fall flow, that three-fourths of the colonies would have starved but for my interference. So taking the average beekeeper with 50 hives of each kind, in the average season, don't you believe that for every colony starving with honey in the larger hives two would starve in the smaller hives? I don't know, and will be glad to change my belief if you give me sufficient ground for the change. [If it is true that the average beekeeper does not see that his colonies are provided with sufficient stores for winter, then you are quite right in saying such colonies will winter better in the larger hive.—I. F.]

That "very exceptional wintering incident," as the editor calls it, is given by Eva A. Brown, page 722. My first impression on reading it was that the air in the cellar was below the freezing point all winter long, and bees wintered well there. It may not have been so bad as that. With the door from kitchen to cellar open most of the time, it may be that the air was above the freezing point without thawing the vegetables. Still it could not have been much above freezing. Well, if those bees had been on their summer stands, with a uniform temperature of

about 32 degrees, we would have considered the conditions quite favorable for good wintering. Why not in the cellar? Two reasons: the first being that the confinement in cellar was much longer than on summer stands, altho we don't know how much longer. The second reason why bees stand a temperature on their summer stands that they will not stand in the cellar is that the air is purer outdoors. In this case, with the door open between cellar and kitchen, the air could hardly have been very bad at any time, especially as we are told that the air could be felt moving in the cellar when the wind blew. So, barring the chance for flight on summer stands, why shouldn't these bees winter well? No doubt the editor is right in calling the case "very exceptional," and I suspect it is so because it is very exceptional to have air in cellar about as pure as outdoors.

* * *

In her interesting discussion of cellar temperatures, page 718, Belva M. Demuth springs something new—at least it's new to me—when she tells us that the temperature of the cellar should be lower toward spring than earlier, because the uneasiness of the bees at the later time makes them raise the temperature of the brood-nest. No doubt she's right, and it complicates things. She doesn't say just how many degrees warmer, and I don't suppose there is any definite figure that will apply to all cases. Anyway, it will be a varying factor, gradually getting lower the longer the confinement continues; and, I suppose, if we keep the bees under the very best conditions the difference between the beginning and the end of winter need be but a few degrees, while it may be very much more if conditions are bad and the bees become very uneasy.

* * *

Will there ever be agreement as to best temperature for bees in the cellar? American Bee Journal and Gleanings say 40 to 45 (altho the former thinks it might reach 50 in the middle of the cellar or between hive-rows); Mrs. Demuth thinks somewhere between 45 and 55; and Dr. Phillips says 50. Even if you knew exactly the right point, don't forget that thermometers vary a good deal. Find out at what temperature bees are quietest by your thermometer in your cellar, and then try to hold it there, keeping in mind that Mrs. Demuth says a lower temperature is needed toward spring.

* * *

I keep a thermometer in the cellar just inside the door that enters the bee-room, at a convenient height for ready reading. I've just been down cellar, and at that point the temperature was 54 degrees. In the middle of the bee-room, at the floor it was 55, and 58 at the ceiling. It makes a difference whereabouts your thermometer is in the cellar.

THAT article by E. R. Root, page 715, November Gleanings, is of unusual interest. The possibilities of a large hive seem almost unbelievable; but one or two thoughts that do not appear on the surface attracted my attention. One is that honey heated soon after it is extracted does not readily granulate. If heated before it has once granulated, it will remain in a liquid condition much longer than when heated after it has once granulated.

* * *

A good many objections have been raised in Gleanings to the use of full-depth Langstroth frames for extracting, on account of their weight. I think we may guess with considerable accuracy what Adams and Myers think of shallow extracting supers. [In Gleanings the advocates of the shallow supers and of the deep ones have both been given a fair hearing, and it seems to us that certain conditions require the shallow supers, while others quite emphatically demand the deep. Among extensive fruitgrowers, we hardly question that the deep super would have the preference.—Editor.]

* * *

"In feeding sugar syrup, without any mixture of honey, shall tartaric acid (a level teaspoon for every 20 pounds of sugar) be used or not?" asks Dr. Miller, page 727. Certainly not. The mixing of honey or tartaric acid with sugar syrup to prevent granulation is no more necessary than the blowing of horns or drumming on tin pans to make bees cluster when they swarm. Some one made a big racket when the bees swarmed; and they clustered, and, surely, it was thought to be a good thing. Some one used acid or mixed honey with sugar syrup and fed to bees, and the syrup did not granulate, and the acid or honey was thought to be necessary. I suppose I have fed more than 50,000 pounds of sugar during the past 10 years without the addition of a pound of honey or an ounce of acid to prevent granulation, and I do not see that the syrup granulates any more than when I used honey or acid. It will sometimes granulate a little, but not nearly so much as the pure honey does. The bees have a little trick of making some change in the sugar syrup that very largely does away with the tendency to granulate. I don't know just what this change is. Perhaps they add the necessary acid. To find out just what change the bees make in sugar syrup would be a nice little problem for the Bureau of Entomology of the U. S. Department of Agriculture.

* * *

J. L. Byer, page 737, inquires if any one has had any experience in feeding raw sugar

SIFTINGS

J. E. Crane

wintered fairly well. Yet I came to the conclusion that granulated or refined sugar was to be preferred.

* * *

That is good advice B. F. Kindig gives the Michiganders, when he advises packing snow around the hives during the winter—only do not pack snow against the entrances. Better place a board leaning against the hive so as to protect the entrance and keep it open. Nature has most wonderfully provided for keeping the earth and everything near it warm during the cold months of winter. The trees drop their leaves, and then comes the soft, fluffy snow full of air (the best non-conductor of heat or cold), and the earth is as surely protected by the snow as animals by their fur.

* * *

Under the heading, "Let Us Be Honest," is the statement by the British Bee Journal that the reputed pound-bottle or 14-ounce bottle should be eliminated. (See page 744.) I think we are a little overnice in our notions of honesty and fair dealing. There is nothing dishonest in selling 14 ounces for 14 ounces. We put up honey in eight or ten different packages, running from 3 ounces to 60 pounds, four of them weighing less than a pound.

* * *

Stancy Puerden hangs up a looking-glass, on page 730, in which we can see ourselves in a rather ridiculous way. She says, "There are some people who can apparently with better grace give up their sons to fight than they can change their habits of eating." How better can one tell how far they have advanced from the animal to the angel than thru their appetites and affections?

* * *

Thanks to Yasuo Hiratsuka, page 724, for his account of those great and terrible hornets that infest the land of the "Rising Sun." Great, indeed, must be the courage of Japanese beekeepers to attempt to keep bees where such an enemy exists. Ugh! I am glad we do not have them.

* * *

The Ontario Agricultural College at Guelph, Ont., is fortunate in securing Burton N. Gates as Professor of Beekeeping. His heart is in his work, and he is sure to make good.

* * *

"The Home of the Honeybees" is to be congratulated as well as the whole State of Ohio, that at last Ohio is to be free from the curse of drink.

SHORTLY after peace was declared people began to make such remarks as this: "I was perfectly willing and glad to deny myself food to help win the war, but I shall not try to save one particle of food to help feed those Germans who sunk food ships, those baby-killers and murderers of innocent civilians, those Huns guilty of unspeakable atrocities."

Many, knowing my sentiments on food conservation during the war, have asked, "Do you think the Germans deserve to have food provided for them now?"

No, to speak truthfully, I do not. But I do hope the allied countries will see to it that they are allowed to obtain food for themselves, and for this reason, to preserve our own self-respect.

I think it was Clemenceau who recently said, "We are making war not on humanity, but for humanity."

And our own President Wilson said: "To conquer with arms is to make only a temporary conquest. To conquer the world by earning its esteem is to make permanent conquest. I am confident that the nations that have learned the discipline of freedom and that have settled with self-possession to its ordered practice are now about to make conquest of the world by the power of example and friendly helpfulness."

And the keynote of a speech made by Lloyd George was "Peace without vengeance."

Doesn't it thrill you with pride to contrast these utterances with those emanating from "German Kultur?"

Don't imagine I am a sentimentalist who would be in favor of letting the Hohenzollerns and military leaders, who are to blame for bringing all this horror and sorrow on the world, go unpunished. I hope they will be speedily brought to justice; but I do feel that if the victorious allied nations retaliated and sought revenge on the civilian population of the central countries we should be descending toward the level of the Huns themselves, and the lives of our heroes, who fought for an ideal, would have been sacrificed in vain.

But even if we should not wish to save food which might find its way into Germany, there are all our little allies which must be helped at once, the Belgians, Serbians, Roumanians, Greeks, Czechs, Jugo-Slavs, and others. Hoover tells us that out of the 420,000,000 inhabitants of Europe, practically only three areas, South Russia, Hungary, and Denmark, comprising some 40,000,000, have sufficient food supplies to last until next harvest without imports. Something

OUR FOOD PAGE

Stancy Puerden



over 200,000,000 of the people of Europe are in social disorder, which immensely increases the problem.

Last year we were asked to save food to win

the war, and we all know how wonderfully the American people responded, and how the food which went over to keep our allies from starvation gave them courage to keep on with the fight until our Americans reached there in sufficient numbers to fight shoulder to shoulder with the French and the English.

This year we should save two-thirds more food than we did last year, and we are to save food not to win a war but to prevent anarchy in a large part of Europe, for we are told famine is the mother of anarchy.

While we are all rejoicing that autocracy has been overthrown, perhaps forever, we must not forget that the Bolshevik doctrines, if allowed to spread thru Europe like a pestilence, may prove to be more of a menace to the peace of the world than militarism.

THERE are those who are inclined to blame the restricted diet of the past year for the influenza epidemic which has swept our country like the plague, and which is still prevalent in so many localities. Now, I have no aspirations toward a Health Page, and when even learned doctors do not pretend to know why influenza sweeps the world in pandemic form two or three times a century, I am sure I do not. But, as I have urged food conservation ever since the war began and have published many recipes for the use of wheat substitutes and other war foods, I feel that a few words in justification of the war diet are proper in this department.

The Puerden family were fed just as nearly according to the Food Administration's suggestions as I knew how to follow them. When a friend once asked me if I practiced what I preached, I assured him I practiced more than I dared to preach. We ate wheat substitutes, especially quantities of corn-meal, observed meatless and wheatless days literally while they were in force, cut down on the amount of sugar, used fruits and vegetables and local products freely, to save shipping space, and simplified our diet generally in order to consume no more food than was needed to maintain health. Did our health suffer? It did not. We were never before so free from colds as we were last winter; in fact, not one of the family had a real cold. The children gained in weight faster than usual. This fall we have continued to be unusually well and entirely free from colds so far, altho we have all been exposed to influenza, some of us several

times. I am making no claim that the restricted war diet kept us free from colds. I am merely pointing out that it did not injure our health in the slightest degree, for freedom from colds is a pretty good measure of a person's resisting power.

Of course, it is quite possible that the entire family may contract influenza before the epidemic subsides, but in that case it seems probable we are in a condition to go thru it without serious results.

I wonder if I dare say something else before leaving the subject. I am not much afraid of editors, but dislike to be misunderstood by my Gleanings-reader friends.

We have all been saddened by the unbelievably long lists of deaths which have occurred in army camps from influenza and pneumonia. What makes it so hard to understand is that those deaths occurred among young and vigorous men, picked from the whole country as physically fit and robust, and living an active out-of-door life with plenty of nutritious food.

Physicians all tell us that pneumonia puts a fearful strain upon the heart. Also these same physicians assure us that tobacco weakens the heart. Permit me to quote a passage from "How To Live," a book authorized by and prepared in collaboration with the Hygiene Reference Board of the Life Extension Institute. This Reference Board is composed of some 74 of the most eminent physicians and health writers in the country.

The following is the quotation in reference to tobacco: "Disturbance of the blood pressure, rapid heart action, shortness of breath, palpitation of the heart, pain in the region of the heart, are important effects. Tobacco heart is often lightly spoken of because the abandonment of the habit will often restore the heart to its normal condition; but tobacco heart often causes death, especially under severe physical strain or in the course of acute disease, such as typhoid or pneumonia. Surgeons have noted failure to rally after operation in tobacco-users, who are, of course, deprived of their accustomed indulgence immediately before and after operation. It is probable that many such cases pass unrecognized."

Isn't it possible that the extraordinary prevalence of the tobacco habit among the young men of this country has been one of the contributing factors in weakening the heart and lowering the resistance to influenza and pneumonia? Many have commented on the fact that apparently more men have succumbed to the disease than women, and while there are a few ultra fashionables among women who smoke, the great majority of our American women and girls do not use tobacco.

Please don't think me a tiresome crank on this subject. I presume if I had been privileged to help in a Y. M. C. A. hut in France, I should have handed out cigarets with good grace. It was probably not the time to start such reforms among the fighting men.

But I am a woman and mother who desires the finest and best of everything in life for our brave American boys, and I cannot help regretting that so many are addicted to a habit which makes them less physically fit.

YOU have all heard of those who "strain at a gnat and swallow a camel." I have just discovered that refers to proofreaders. At least I imagine the modern proofreader is a direct descendant of ancient proofreading scribes. The camel the Gleanings proofreaders unwittingly swallowed was on page 730 where I made the astonishing statement that you should omit about one-fifth of a cup of liquid when you substitute a cup of sugar for a cup of honey. You see I was so joyful over the opportunity to call sugar a honey substitute that I quite lost my head. I should have said, "add about one-fifth of a cup of liquid when substituting a cup of sugar for a cup of honey."

PEA, CELERY, AND NUT SALAD.

½ cup chopped nuts	mayonnaise dressing
1 pint can peas	½ lb. celery, cut small

Bring the peas to a boil, drain and cool and combine with the nuts and celery. Mix with a little mayonnaise dressing and serve on lettuce leaves, topped with a spoonful of the mayonnaise. Boiled dressing may be used, if preferred.

MAYONNAISE DRESSING.

2 egg yolks	4 tablespoons vinegar or
1½ cups oil	lemon juice
	1 teaspoon salt

Beat the egg yolks thoroly, add the oil drop by drop, beating constantly. As the mixture thickens, thin with the vinegar, in which the salt has been dissolved. Add oil and vinegar alternately until all is used, beating constantly. If the oil is added too rapidly the mixture will curdle, in which case it is necessary to beat another egg yolk and add the first mixture gradually to it. A regular mayonnaise mixer saves work and time, but it can be done with a Dover egg beater.

Now that olive oil is so high in price a very good mayonnaise may be made of any mild-flavored cooking oil, using two or three tablespoons of the olive oil for flavor. Have all the ingredients of the same temperature, and cold if possible.

MAYONNAISE FLUFF DRESSING.

To 1 cupful of the above dressing add ½ cup of stiffly whipped cream just before serving.

GRAHAM MUFFINS.

1 egg	1¼ cups white flour
2 cups thick sour milk	2 teaspoons soda
1 teaspoon salt	1 tablespoon melted
1½ cups graham flour	shortening

Beat the egg in the mixing bowl, add the sour milk and then sift in the two kinds of flour in which the salt and soda have been sifted. Use only enough of the white flour to make a rather thin batter. Add the shortening last, dip into hot, well oiled muffin or gem irons, and bake in a quick

(Continued on page 60.)

IT seems too late to do so, Miss Fowls, but I must add my welcome to the others. The delay is one of accomplishment only, not of mood. Ever since you gave the readers of *Gleanings* that able and enlightening account of the Fowls' adaptation of the Alexander method of increase, two or three years ago, I've been one of your admirers. (Nor do I object to a disputatious disposition!)



* * *

How proud we may all be! I say "we," because all beekeepers claim A. I. Root and Dr. C. C. Miller as their very own. After reading about first one and then the other in the *American Magazine*, I felt just as personally strutting as tho they'd been—say my uncles, my two favorite uncles. But it was news to me about the music, Dr. Miller, and the connection with the wonderful Thomas Orchestra, and the roses and the gladioli. I believe I half knew it, tho, for the love of music and flowers would be native qualities of one who really loves bees, and dreams them and wants them a part of his life. Do you mind my admitting that you are one reason I am glad to be a beekeeper?

Then, recently, the general methods and the inspiring success of E. S. Miller of Valparaiso, Ind., were written up in the *Country Gentleman*. So altogether beekeeping and beekeepers have come quite prominently and favorably into the national limelight.

* * *

When E. R. Root says, page 715, December *Gleanings*, that "the big hive is certainly the proper thing for the fruit-grower or any other man who is operating some other line of business, and who wishes to work on the let-alone plan at certain seasons of the year," he is speaking pretty directly to a great many side liners. The hive, or method, or manipulation, that reduces the work necessary to the successful harvesting of a crop of honey is an advantage to all beekeepers, but quite especially to those who, for the chief part of their time, are busy on other matters, yet who wish to run their bees after such a fashion as to justify calling themselves progressive beekeepers. In this connection I recall Mr. Byer's remarks, page 737 of the same issue, to the effect that when he can eliminate any of the heavy work, he is glad to do so. Even tho the work be not particularly heavy, it takes time, and if we can find a way to achieve the desired result without doing the work, who will rise up to argue for the doing of it?

Returning to the question of the size of the hives, no longer do the majority of the beekeepers around here who have standard equipment already in use limit their brood-

chambers to one body. One and a half or two stories are becoming common for the year round. While others, wintering in two stories, place the queen

in the lower, under an excluder, at about locust bloom, leaving the bulk of the brood above, and seeing to it that there is plenty of room below.

* * *

I have recently been reading a little treatise by Ed. H. Clark, dealing chiefly with the problems of moisture, humidity, temperature, ventilation, and the evaporation and condensation of water vapor within the hive. To the lay mind that knows little of physics or natural philosophy, the array of terms and statements and tables is impressive. Yet, in its direct plea for ample condensation of moisture on the inside walls and cover of the hive, it is most unorthodox. Not that that in itself is against it, however. Only by somebody's coming out against established theories have new ones ever come in. But this particular idea seems somehow staggering. To set out with the deliberate intention of making a hive that is a good condenser, and "that would leave the condensed water where the bees could use it" is a new idea to me. Mr. Clark's practical conclusions, not particularly staggering of themselves, are that we must give the bees "a well-varnished inner surface to the hive, and a cover that, at no time, permits of upward ventilation."

My own experience with sealed-down super covers has not been encouraging, owing to the moldy combs in the hive in the spring. No such trouble having appeared in any hives where I used the so-called upward ventilation afforded by absorbent cushions, I am at present most favorably inclined toward absorbents. I think Mr. Clark makes no mention of the moldy-comb condition. Sometimes I have slipped a slender twig into entrances in winter, wiggled it around on the hive floor and had it come out wet and drippy. That certainly is a bad condition. But what brings it about? Many things might be contributing factors—the quality of honey, too much unsealed stores, syrup fed too late, propolized sealing of cover broken too late, besides weather conditions—the relation between temperature and humidity, and perhaps other things quite unsuspected. Condensed moisture in the hive is generally admitted to be undesirable, yet the majority of beekeepers prefer the sealed covers. It's an interesting subject, and I'm going to know more about it.

* * *

On page 733, December, I admitted feeling "no mood for side-line verses—nor, indeed, for side lines themselves." But I did

not say, honestly I did not—"side liners themselves" as the uncontrollable little printed letters read! Always, I think, I am in the mood for side liners.

I once received a letter from a beginner saying that the reading of various articles by various successful beekeepers was exceedingly confusing and discouraging, as there seemed to be such a great difference of opinion among them, such a difference in conclusions after long studying the same problems. Whether this is more noticeable in beekeeping than in allied lines of general farming or stock raising, I can not say, but am inclined to think it likely. There are so very many things entering into beekeeping, besides merely having bees. Bees, after all is said and done, are not domesticated, and tho we may have learned somewhat of the complexities of their organisms, the mysteries of their psychology, and the laws of their reaction to environment, there is still much more to learn. There are many different things that affect them and their behavior, and the amount of surplus honey they store.

But one can scarcely blame my befuddled beginner friend. One group says that 10-frame hives are not large enough for wintering; another group says remove some of these 10 combs for winter, and make the bees really snug and comfortable. Some proclaim the dire necessity for packing, others scoff it. Some cry out against aster honey for wintering; others report continued successful wintering on aster. Dr. Miller says honey is unspeakably superior to sugar for winter stores; Mr. Byer says the reverse. Absorbents and upward ventilation have their adherents; sealed covers have theirs. And nearly everybody has a reason.

But, dear beginners all, it takes all the observation that can possibly be given the subject, all the study, all the reporting, all the comparison, all the patient deduction, and all the generous exchange of experience to get anywhere near the point towards which the industry is surely headed—the more complete understanding of a wild little insect and its ways under differing conditions. In this more complete understanding lie the beekeeper's profits.

* * *

It is Dr. Phillips who says, and the saying pleases the side liner: "It is probable that the larger part of our present professional beekeepers began as amateurs, rather than as farmer beekeepers, and, in all likelihood, the extensive producers of the future will be recruited from the suburbanites and nature-lovers who now keep bees for the enjoyment they get from them, with little present thought of future gain."

* * *

One recent Sunday evening, returning from a visit to a beekeeper who is working out a wintering system that I hope to write up soon, we found another well-known bee-man awaiting us here at home—Mr. Geo. W.

Williams, formerly of Somewhere in Indiana. (It's not a secret—I've just forgotten.) And what a good beekeeping, beekeeper, crop, price, war, and peace talk we did have! Mr. Williams is as much in earnest as ever about honey boosting, and is full of hopes and plans for honey production and the placing of honey in the class of eatables that is regularly planned on by the housekeeper, thus making it permanently profitable to produce.

* * *

We have often fed sugar syrup, one part water to two generous parts sugar, several times $2\frac{1}{4}$ and occasionally $2\frac{1}{2}$, with neither honey nor acid added, and have never experienced the slightest granulation.

* * *

GIFTS.

To Eugene Secor, *the Bee-Poet*.

"Oh, save not all your flowers for my grave,
Nor all your friendly courtesies withhold
Till I have gone, or grown, perhaps, too old
To care. 'Tis now I crave
The winsome grace and beauty of the earth,
And gracious gallantries and genial mirth."

Reiterant thru all our hurried years,
We hear (and make) this hungry human cry,
Till grateful hearts, forgetting to be shy,
Bring gifts of flowers or tears—
Or song perhaps, or some few awkward words
That flutter forth and fall like dumb dead birds.

I too would bring my loyalties and gifts,
And lay them, one by one, before the tents
Of those I most would praise and reverence.
(Ah me! my spirit lifts
Such flame of splendid purposes on high—
Then forges little fragile gifts, that die.)

This is for you. You will not put it by—
My little gift of semi-singing words,
My little flock of dumb, bewildered birds
That neither sing nor fly.
Thru timid silences or quavered notes
Your soul will feel the song in aching throats.

O Singer of bees and blossoms,
Yours is a kindly song;
Wherever it went, men's old content
Grew straightway young and strong.

Gay bees with their murmurous magic
Went humming across the pages—
Their haunting rapture, who shall capture
Thru the singing ages?

You sang of April's budding
And June in her shimmer and shine.
Revealing glint and glowing tint
And glamour, line by line.

You wandered the ways of beauty,
And we who would follow after
Find lifted veils along the trails,
And wings and living laughter.

O Keeper of bees, and Lover
Of flowers and books and song,
You have woven well, for the charm and
spell,
Still echoing, drift along.

When findeth Song its ending?
Song endeth never—never.
Its music and dreaming, heart-swaying, go
streaming
Forever and ever and ever.



FROM NORTH, EAST, WEST AND SOUTH



In Northern California.—During the first week of December the beekeepers of northern California experienced the best series of meetings ever held in this part of the State. Government experts and the editors of *Gleanings* and the *American Bee Journal* gave valuable talks. Practical beemen, among whom was Charles J. Edson, related their methods of practice. It was interesting indeed to learn how the Edsons produced more than 100 tons of honey each year for five consecutive years.

Manager Justice, of the State Exchange, threw his usual pep into exchange meetings. The Sacramento local exchange is gaining rapidly in membership. At the annual meeting the members elected Mrs. M. E. Engel of Chico as president, and Mrs. Cecelia P. Robinson of Esparto secretary-manager. The membership of the Exchange is very fortunate in securing the services of Mrs. Robinson, who, unquestionably, will show herself well fitted for her task. On the concluding day of the meetings the following spontaneous memorandum to the Dean of the College of Agriculture of the University of California was presented:

We, the beekeepers in attendance at the beekeeping short course at the University Farm, Davis, respectfully desire to present in this memorandum an expression of our wishes relative to further educational work in beekeeping. The present short courses provided by the University and the Federal Department of Agriculture have impressed us with the desirability of such work. We recommend: that there may be made the division of, or substituting for, the present correspondence course in beekeeping so that it shall deal with beekeeping topics and practical beekeeping; that additional courses, and, if possible, courses of longer duration in beekeeping, be provided in future years; that provision be made for such courses for both beginners and commercial beekeepers; that provision be made for continuous co-operative extensive field work in beekeeping for intimate personal instruction in beekeeping practice; that regular college work be given in elementary and advanced beekeeping with correlated courses in botany, bacteriology, meteorology, inheritance, and animal behavior; that comprehensive publications on beekeeping topics be published by the University, including a revision and republication of Richter's "Honey Plants of California." In order to save valuable time we request that provision be made for the routine diagnosis of samples of brood suspected of disease. This work now done by the Federal Department can not be reported upon with sufficient promptness because of the great distance.

When provision can be made it would be highly desirable to have investigations made on beekeeping topics especially applicable to California conditions. This might profitably include investigation of the unused honey resources of the State.

Respectfully submitted by authority of 135 persons in attendance.

(Signed) CHAS. J. EDSON, Secretary pro tem.

Modesto, Calif.

M. C. Richter.

In Southern California.—Weather conditions in southern California are, I think, very satisfactory, so far as predictions for a 1919 crop are concerned. We have had some rain, in fact, a good average for this time of the year. We have had considerable high drying wind, but we expect this over most of the southern part of the State in the fall of the year. Grass has not started much yet, but fruit buds are showing up well; and, if the beekeeper gets ready, I feel sure that he will be well repaid in next season's return.

During November and December in southern California the rearing of brood ceases entirely in the majority of colonies; in fact, only in those colonies having a very vigorous young queen can any brood be found. In inspecting a colony for signs of disease at this season of the year, about the only sure way is to look for the dried scales in the cells. If scales should be found, a close watch should be kept, and if the colony shows, at any time, a weakness in bees, it should be removed to a distance far enough away to make sure that no chance is left for other colonies to become contaminated by robbing. Unless the colony is strong in



"Kactus" apiary of L. L. Andrews, which is moved to get the orange and then back to the wild buckwheat. Martillija poppy is seen in the foreground.

bees, I feel that the best and safest way is to destroy the bees, render out the wax, and disinfect the frames and hive.

The writer was just talking to an extensive beekeeper who gave out the information that he had been looking over his apiaries and had found many colonies light in stores. These he had been feeding. He had left them all, so he thought, with plenty of honey for winter. Other hives he found with no bees at all, and, upon inspection, he found strong evidence of European foul brood. These colonies showed no signs of disease at the close of the honey flow. I combated this disease strenuously during the years of 1916 and 1917 in my apiaries, and during 1918 found almost no evidence of European but considerable American foul brood. Many of us out here in California are still open to conviction as to there be-



FROM NORTH, EAST, WEST AND SOUTH



ing two distinct diseases—American and European—even tho our government specialists are agreed that the two are quite different.

Twice the Orange Belt Co-operative Honey-Producers' Exchange has had to call off its annual meeting on account of the "flu." The last date set was Dec. 6, but, as the ban is still in force in Riverside, the meeting has again been postponed. This exchange consists of San Bernardino and Riverside Counties, and includes by far the largest orange-honey-producing territory of any exchange in the State. Orange honey is the very earliest of our California product and is often on the market soon after our Eastern friends take their bees from their winter quarters.

Last winter proved to be one of the mildest ever known in southern California. For just about one year no rain fell in our part of the State. The eucalyptus bloomed all winter and furnished honey abundantly. Anyone having bees near a large number of these trees found the hives getting heavy with honey in the winter. Some apiarists were able to extract considerable almost pure eucalyptus honey. The bees built up and were strong early in the season. Those who moved their apiaries or already were in reach of the orange groves reaped a rich harvest from that source. After some 20 years of experience, I never expect to see a better honey flow from the oranges than we had last season. December is none too early to begin getting ready for the orange honey. A colony short of stores now will be slow in starting to build up in the spring. There seems to be plenty of sugar available for bee-feed, and, from what I can learn, the beekeepers are quite generally availing themselves of the opportunity of feeding wherever it is necessary. Ordinarily, when honey was cheap, little anxiety was felt as to whether a colony got thru the winter safely or not; but now, with the high prices for the crop of the last two years, it looks as if we really owned something worth while in a few colonies of bees.

Perhaps California has experienced in the year 1918 one of the most satisfactory honey seasons in its history. The crop was not a large one; but all got some honey, and many a good crop, while everybody received a big price. Heretofore beekeeping has been looked upon by the great majority of people of moderate means as a side issue along with something else, or as a vocation for an old man, some one who likes to get a little easy money without much work. When some of the beekeepers who had been quietly goin on, "saying little but sawing wood," as the old adage goes, began to deposit ten, twelve, or fifteen thousand dollars in the bank as returns for their honey crop, even the bankers began to sit up and

take notice. Honey production will hereafter be looked upon as a pursuit deserving a place beside other worth-while industries. Many are asking questions and becoming interested in the business. When some parties found that the writer had as much money invested in beekeeping operations as they had in a 10-acre orange grove, they were amazed. They thought that a few hundred "beehives" did not amount to anything, and that all a beekeeper has to do is to work a little during the honey season, take off the honey, and get his money—with nothing to do the balance of the year. Many are now willing to invest thousands of dollars in the business in the beginning; while those who have been making a success the past years, have worked up from a very small outlay. War conditions, together with the restrictions on sugar, have caused the public to use honey almost universally. Thousands of people who never used it before have found out that they like this sweet substitute, and they will hereafter use it regularly. People come to my place and hesitate about buying a five-pound bucket of extracted honey, saying that they do not eat much honey and that five pounds would last them a year or two. In many instances they come back in two or three weeks saying, "We all seem to like that honey, and it is so good for the children," and they continue to buy. These things all combined to make 1918 a most encouraging year for the southern California beekeeper. The future of beekeeping was never brighter than it is for 1919. We cannot expect to get the high prices of war times; but we are better satisfied with our pursuit, have a better standing among the industries, and are well content to make beekeeping our life work.

L. L. Andrews.

Corona, Calif.

* * *

In Minnesota.—On account of the prevalence of influenza the State Board of Health placed a ban on all state gatherings; and, consequently, the Minnesota beekeepers were not allowed to hold their annual meeting during the first week of December as planned. Instead the meeting will be held January 2 and 3, in connection with the annual short course at the University Farm—that is, if the ban is lifted in time. At this writing a second wave of the epidemic has struck Minneapolis, and over 20 of the schools have again been closed.

The outlook for the beekeeping industry in Minnesota is especially promising at this time. While harmony has prevailed among the various departments in the past, there has been a lack of teamwork. But now, largely thru the efficient work of our special field agent, Mr. McMurphy, plans have been worked out which, I believe, will result in much greater co-operation in the fu-



FROM NORTH, EAST, WEST AND SOUTH



ture among the Division of Bee Culture, Department of Agricultural Extension, Minnesota Beekeepers' Association, and the State Apiarist Department. These units will function as in the past, but under the new arrangements each will be an aid to all the others. Mr. McMurry's territory includes Wisconsin with Minnesota. Each alternate month is spent in this State. Beginning with January he will start work here under the new arrangements, and we trust that Minnesota beekeepers will rally to his support and assist him in every way possible. He is a man of large vision, and is rapidly getting a grasp of the problems and conditions of beekeeping in the Northwest. Chas. D. Blaker.

Minneapolis, Minn.

* * *

In Michigan.—Keep after your State legislators. At the coming session, let's try to have an assembly of men informed regarding the interests of the beekeepers. Information is essential in order to secure intelligent legislation.

Upon returning from a trip thru the northern counties of the State, Mr. Ewell, extension specialist, reported a large number of colonies outside without protection and with no prospects of any except snow. This is the usual thing all over the State. The time may come when all beekeepers will appreciate the necessity of adequate protection, but the time will never come when all will protect.

The superiority of the big two- and four-colony packing cases, has been very evident here during the last 10 days. We have had some very bright but cold days. On such days the bees flew from the double-walled hives, and most of them were chilled before returning. But no bees were seen flying from the big packing cases. Surely, those bees which are quiet and remain inside during such weather are wintering better than those that fly out whenever the sun shines brightly.

As this is being written, the prospects for a beekeepers' short course at the College this winter are very good. The course would be designed specially for amateurs and would not be particularly interesting to the professional beekeepers. If sufficient interest is manifested in this course, it will likely be made an annual affair at the Agricultural College. It is proposed to hold it the latter part of March. Anyone interested should write the undersigned for particulars.

The postponed annual convention of the State Beekeepers' Association will be held in Lansing, Jan. 21-23. This date is final and will not be changed. Unfortunately, two Canadian and two Michigan beekeepers did not get word of the change in date and appeared in Lansing on Nov. 19. An in-

formal but interesting small-sized convention was held in the parlor of Hotel Downey. If a complete program is not in your hands on Jan. 1, write for one. The following is a brief summary of it. The president's address will be of special interest to every one and will be delivered at 1 p. m. on the first day of the convention. President Campbell will have a message which will be of very great importance to every beekeeper. Be sure to be on time for this. E. R. Root, C. P. Dadant, J. N. Harris, and others will discuss the subject of "Large Hives." J. N. McBride, State Market Director, will speak on "Co-operative Marketing." Hon. Geo. A. Prescott, Federal Food Administrator, will speak on a subject to be announced later. More topics and speakers are as follows: "The County Association," Miss A. Sly; "Two Queens in One Hive," Arthur Sharrow; "Combless Packages," E. A. Leffingwell; "Honey Resources of the Upper Peninsula," B. F. Kindig. Others will be announced on the printed programs. Headquarters will be at the Detroit and Kerns (Wentworth) Hotels. Place of meeting announced on programs.

B. F. Kindig.

East Lansing, Mich.

* * *

In Ontario.—Any worries I may have had about putting bees in the cellar are past for this year. If I must worry, my energies in that direction will have to be focused on when to take them out. The good friend at the Fenelon Falls yard who had agreed to put the bees in the cellar (bees are 70 miles away from my home) wrote under date of Dec. 5 that he put bees in cellar the week before, which would be the last part of November. Judging by weather here in York County, I think they went in at as good a time as could be had this past fall, for altho November was milder than usual, yet we had no real warm day that would give a thoro flight. The season to date (Dec. 9) has been favorable for outdoor-wintered bees, as we have had little severe weather yet—only a day or two with temperature of about 12 above zero for the coldest. Owing to abundant moisture and a mild fall, clovers have gone into winter season with a good top growth, and present prospects are that the clover in Ontario will be at least of normal acreage next season, provided the winter and the spring are favorable. By the term "clovers" I have rather in mind alsike principally, as it is the great yielder of honey here in Ontario. Of course, white clover yields some in many localities, but it is much more fickle than alsike. Then again, white clover, so far as my observation proves, rarely winterkills. The worst kind of weather for this plant usually occurs when we have a hot and dry August,



FROM NORTH, EAST, WEST AND SOUTH



the plants then being killed out root and branch.

A number of Canadian beekeepers have already placed orders in the South for combless packages of bees next spring, provided that prices are not too high. During the last few days some of the breeders have sent out their literature, and prices are certainly not low. Whether they are too high in comparison with the price of honey and other products is another question; but, I venture to say that should the tables be reversed and we were in the South, the chances are that we would quote just as high if in the package business. The disturbing part of the situation is not so much the price, so far as I can figure out; but it is a question of being reasonably sure of getting the bees delivered without heavy losses in transit, said losses to be borne entirely by the consignee. True, the shippers guarantee safe delivery when sending by parcel post, but on express shipments all literature that I have seen so far says emphatically, "by express, at receiver's own risk." While it is only natural that shippers are anxious to protect themselves against loss, on the other hand it is just as natural that purchasers desire the same protection, and I doubt if many will make very heavy purchases unless those conditions are somewhat modified. While bees will not be admitted into Canada by mail under present regulations, I understand that the matter is now under consideration of the postal authorities and that a decision is likely to be handed out in the near future. But granted that we get the same ruling as prevails in the U. S. at present, I fail to see how this will help the shipper out very much so far as guarding against losses is concerned, as the custom house ordeal will still have to be encountered. Granted that customers are assured of safe delivery by any means of transportation, and prices are not too high, I certainly feel sure that a great volume of business will be done next spring in combless packages of bees, as many beekeepers, both amateurs and professionals, are contemplating doing business in that line, provided the difficulties in the way are not too burdensome and risky.

I have just learned that the Ontario Convention will not be held till some time in January. No program has been received as yet, and so I am not sure of exact date. No doubt, the late date is accounted for by reason of the influenza epidemic that prevailed in Toronto and other places a short time ago, but which is now, happily, so far as Toronto and vicinity are concerned, almost a thing of the past. The late date will take away all excuse of being too busy to attend and we should have a bumper attendance.

I hope to be pardoned for once more referring to another frontispiece of Glean-

ings—that of December issue. The picture shown there is, I think, a companion picture of one shown a few months ago. My reason for referring to this matter again is because the pictures taken, of which these are some of the samples, were among my very first efforts at working the camera. I barely knew how to manipulate the machine, and yet the pictures of that first attempt are about the very best ever obtained with the machine, altho I have snapped scores since that January day some years ago up in the yard near Coldwater. Whether it was because of better films than can be obtained now or because I was more careful in getting correct distances, focusing, etc., I am not sure; but the fact is that I have rarely equaled and more rarely bettered the results of that first day.

In starting out another year, I wish to make a personal statement relative to the matter of answering correspondence that invariably follows writing for any publication. Usually I try to answer all letters; but this last summer, owing to being unusually busy and short of help at times, some letters were never answered. To such as received no answer I would ask your forbearance, and I promise to try to do better in the future. May all the readers of *Gleanings* have a happy, prosperous, and peaceful New Year.

J. L. Byer.

Markham, Ont.

In Texas.—Mention has been made but once or twice in beekeeping literature of bulletin 685 of the United States Department of Agriculture. This bulletin, entitled "Honeybees and Honey Production in the United States," was issued last June. Now is the time of the year for reflection, for study and plans for the future; the time for soap-box politicians and stove-league-ball players. The basis for much of the discussing of this bulletin is the 1910 census, but the yearly crop reports are used to bring the data nearly up to date.

The portion of this bulletin pertaining to Texas is extremely interesting and should be carefully considered by every progressive beekeeper in this State. First, it is a matter of considerable pride that Texas is ranked as the first State in the United States in the colonies of bees, with 238,107 colonies. However, it is estimated that in 1918 this number had been reduced to 192,400 colonies. The causes for this very decided reduction is the first matter to attract attention and should be of great concern to all. We find that the data collected indicate a very great increase in loss by disease during the summer. This may be partly explained by the natural spread of American foul brood which is being reported each year over new territory as beekeeping methods improve and box hives are being discarded. As a matter of comparison it is shown that



FROM NORTH, EAST, WEST AND SOUTH



Texas suffers the greatest loss from disease of any State, Oregon being in second and California in third place. The winter losses suffered in Texas are certainly a surprise, as it has always been considered that in this State we had no wintering problem. It is shown that we lose one out of every four colonies in this way. While there are losses somewhat greater, nevertheless our losses are entirely out of proportion for the conditions. When the causes for this great loss are investigated it is found that a failing queen heads the list and starvation is second. These two items have received much consideration during the past fall, and it is indeed interesting to know that these assigned causes are backed by facts.

The honey-production data are very interesting. It is stated that during the five-year period of 1913-17 the average production per colony was 37 pounds. This estimated production gives a sum considerably more than it was ever possible to ascertain from trade estimates. In the matter of honey production Texas is comparatively low, due very largely to the low production of 1917. But such excuses do not justify a production as low as is shown. Of the honey extracted 69 per cent is extracted, 22 per cent is bulk comb and 9 per cent is section. Texas has been considered a very large producer of extracted honey, but the tables show six States producing a larger percentage of their crop in this form. Even in this State there has been an increase each year in the proportion of extracted honey produced. Of the honey produced 33 per cent is classed as white, 38 per cent as light amber, 23 per cent as amber and 6 per cent as dark. In 1917 it is stated that 68 per cent of the honey produced was used at home and only 32 per cent was sold to markets outside of the State. There is shown an increased home consumption of honey. The price of honey had advanced but very little in the period under discussion.

The source of the honey in this State is equally interesting, and the distribution of the honey flora is shown to be as predicted. Of the nectar-secreting shrubs, mesquite 13 per cent, catsclaw 8 per cent, and quajilla 4 per cent, produce 25 per cent of the total crop. Cotton produces 24 per cent, alfalfa 11 per cent, and horsemint 19 per cent of our honey crop. Viewed from a state-wide standpoint these figures are very interesting and show a different balance of plants than is ordinarily supposed. As to the distribution of the honey-producing plants, it is shown that the south and the southwest sections with shrubs and horsemint produced two-fifths of the total crop. The west section with alfalfa as the principal source of honey produced one-fifth of the crop. The remainder of the State, given as central, east, and north, with cotton, horsemint, and miscel-

laneous plants, produced the other two-fifths of the honey.

After due reflection on this summary of a vast complication of figures, it should be the aim of every beekeeper to do his part in bettering the conditions and the production of this State. It was shown that losses were excessive—in fact, as bad as any State in the Union. Let each strive to put Texas again in first place in the beekeeping world, a place justly deserved.

Reports from every section point to the return of normal condition of the honey plants. In the late November the early spring flowers were up better than in April, 1918. The horsemint is abundant over all the territory of its range. Native plants, wild flowers, and trees have all been put in first-class condition by the fall rains. Those beekeepers who put their bees in good condition to go thru the winter are sure to have bees on hand for the spring flow.

H. D. Murry, well-known queen-breeder, has moved from his home in northern Texas to Soso, Miss. Here he will engage in the early rearing of queens. He expects to return to Texas in time to take up his work here.

F. B. Paddock.

College Station, Tex.

* * *

In Florida.—Right now, during the next three or four weeks, is the time for Florida beekeepers to take some action in their own immediate localities to avert a situation which has for the last four or five years been growing into what may at any time become a serious menace to their business. The manufacturers of insecticides are advertising and advising the citrus-growers to spray their trees while they are in bloom, claiming that by so doing they will secure brighter fruit, and that spraying will help the bloom to set. We, of course, know the fallacy of such claims, but are we doing anything to teach the orange-grower that spraying in bloom is not only a waste of money but also a detriment to his chances of a successful crop? It is true that so long as lime-sulphur sprays are used we have nothing to fear, for these only drive the bees away from the groves, and it is impossible to spray all groves on a location at the same time. Still we have no guarantee that lime-sulphur sprays will always be used; and it is always possible that a poison spray may be advocated and used by someone who has given no thought to the matter, and is led by the advice of those whose business it is to sell insecticides. With white fly as prevalent as it is this year, it may be advisable to warn the orange-growers against allowing any spray to be used on their trees which might be detrimental to the health of our bees. This may be a false alarm; I hope it is, but I don't know.

Apopka, Fla.

Harry Hewitt.

HEADS OF GRAIN FROM DIFFERENT FIELDS

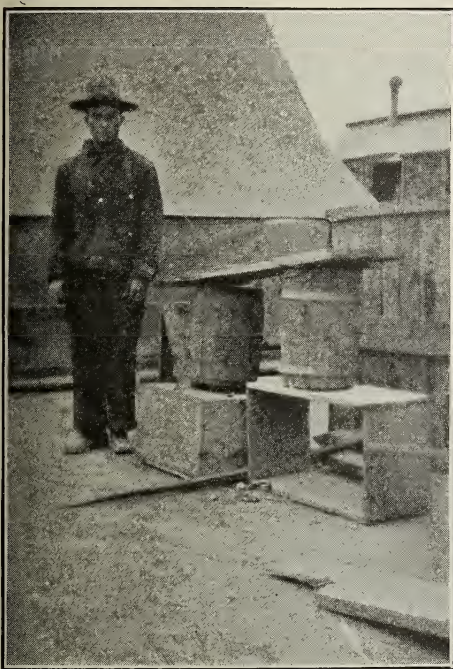
The Bees and the Soldiers.

While stationed last spring at Camp McClellan, Alabama, the

bee fever seized those of us who at our homes had been amateur bee-farmers, and our thoughts were often diverted from soldiering and "squads east" and "squads west" by reports that swarms of bees had been observed in some particular corner of the camp. At such times the most enthusiastic veterans of Langstroth frames and various kinds of smokers availed themselves of the earliest opportunity to find the alleged swarms. On May 27 there appeared to be an epidemic of swarming. One lot of golden-striped beauties had taken refuge in a pile of empty drainpipe quite near my tent, and

my own bees have had my attention, yet wherever I happened to camp I have been on the lookout for some of my pets. At Brownsville, Tex., in the fall of 1916, some most primitive hives were found and photographed. Over here in France so far but three colonies have been seen. They were in the province of Vienne, near Portiers, in August; and even the hives, like nearly all the buildings, were roofed with red tile. The bench on which they rested was perched on the rocks above the roadside along which I happened to be traveling.

Wm. D. Richardson,
No. 1,296,437, Sgt. Co. E, 104th Amm.
Train, American E. F.
France, Nov. 6, 1918.



The horseshoer soldier and his two swarms of bees safely hived in nail-kegs.

had lost no time in setting up housekeeping. Some small pieces of comb were constructed; but several days later these bees vacated their new house, leaving no "new address" at which they might be found.

But we had better luck with two swarms which one of our horse-shoers (Pyrrhus D. Shelor) installed in a couple of old empty horseshoe-kegs. Both colonies went to work without delay, and before we entrained for a port of embarkation they were safely transferred one night to a farm near by.

While my home is in Spottsylvania County, Va., and three summers have passed since

Foundation—Do the Bees Discriminate?

Occasionally it is claimed that the bees will draw out one make of Weed Process foundation quicker than they will another make of the same process. Are the bees not governed by existing conditions as embodied in the foundation, rather than by a discriminating instinct that some claim for them? The human being may be led to believe that a certain brand of merchandise excels another brand that is identical in quality, and that is produced from the same materials by the same identical machinery in each instance; but the bees are not subject to human persuasion, and, therefore, not influenced in this manner.

We have carefully tested out the foundation of different manufacturers, our own included, as well as that of one manufacturer in particular who claims that the "bees take to theirs first," the tests being conducted in neighboring apiaries as well as our own. These tests utterly disprove any such claim. We find that the age and weight of the foundation used are foremost among the determining factors. If foundation fresh from the mills is used alongside of foundation that is several years old, the bees will naturally select the freshest foundation first. Nor would it be a fair test to use heavy foundation of one make against lighter foundation of another make. These conditions being equal, our experiments are highly gratifying, as we find the bees do not use the discrimination that is claimed for them. The charm that is claimed for certain foundation did not cause the bees to "take to theirs first." We shall be pleased to have others verify these results with personal experiments of their own. While we do not claim that our foundation will charm the bees, we do claim that they will recognize its high quality as quickly as they will that of any other make that is manufactured anywhere in the United States. To state that they will draw it out quicker than

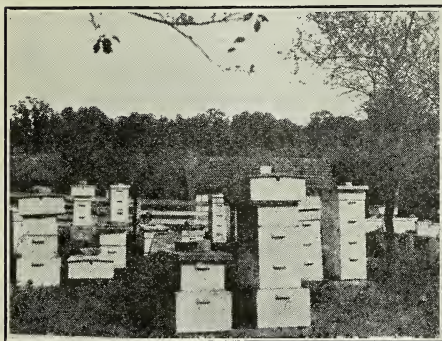
HEADS OF GRAIN FROM DIFFERENT FIELDS

they will the same Weed Process foundation of other manufacture would not be fair to the other manufacturers of the same product, unless, of course, we should use foundation that is subject to the conditions above outlined, in which event it would not be an impartial test.

Superior Honey Co.

Ogden, Utah.

A Big Queen-Breeder's Apiaries. The apiary of J. P. Moore, the widely known queen-breeder, is situated about a mile from the little town of Morgan, Ky., and comprises some 600 nu-



A corner of Moore's apiary.

clei in addition to 285 full colonies. These 285 colonies include an out-apiary of 85

colonies. The winter loss here last season was only 18 per cent, and all colonies are wintered in two stories. The capacity of this yard is 900 queens per month. It will be noticed in the illustrations that all nuclei are raised about three feet from the ground to prevent backache incident to constant stooping. This is no small matter for consideration when the nuclei run up into the hundreds. There are four on each stand.

The honey crop was far below normal this year, probably about 12,000 pounds. As a rule, two men run this yard from May 15 to Dec. 15, and one extra man is engaged during extracting time. The main flow is from sweet clover; but considerable honey is also secured from white clover and locust. Goldenrod and asters furnish a limited fall flow.

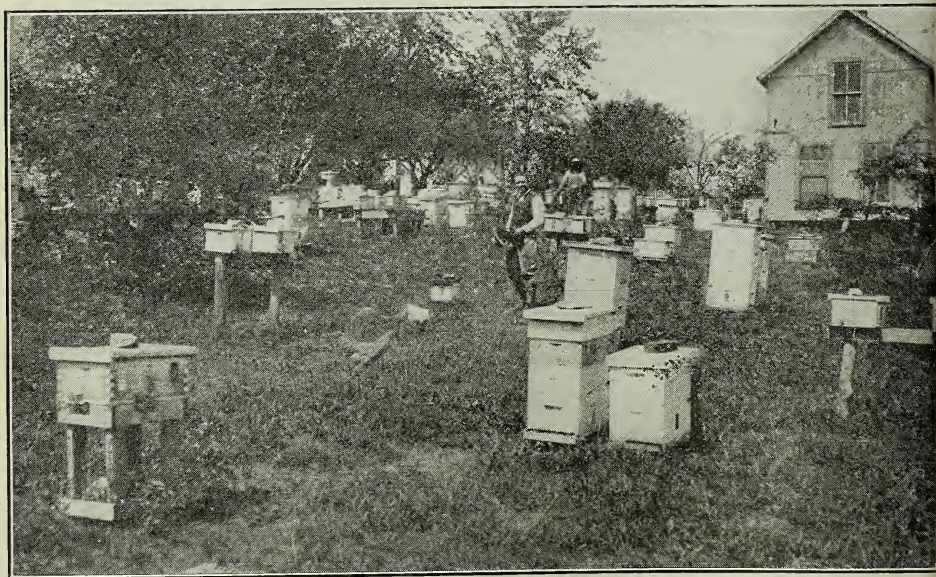
Albin Platz.

Cincinnati, O.

That-Comb-Honey Ratio Again.

Several times has Dr. Miller puzzled over the relative amount of

comb to extracted honey that could be produced by the same number of colonies, and I have never noticed any one attempting to answer the question, altho I believe it is asked sincerely, and not with a view to entrap some thoughtless "fly" mind. It appears to me the answer is one of locality, or, rather, of latitude. There might be a place, say Marengo, where the temperatures are so equable, night and day, that the ratio of comb to extracted might be as 2 to 3. Another place, with colder nights, might make



A section of J. P. Moore's apiary at Morgan, Ky., showing the manager and honey-house of the well-known queen-breeder.

HEADS OF GRAIN



DIFFERENT FIELDS

the ratio 2 to 4; but if one were to travel away to the north, where the nights are considerably cooler, the proportion would vary still more in favor of extracted.

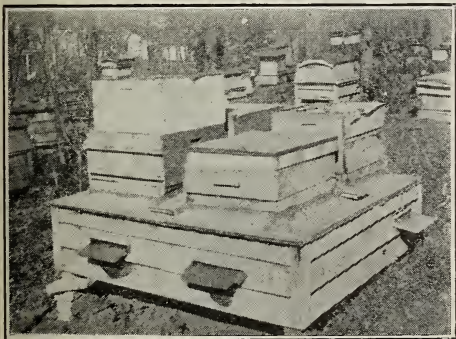
While I have not tried to raise any comb honey for a few years, I have seen a hot summer when I did get about 50 combs from a hive. But usually it is too cool here at night (and that is what makes the good wheat that brings the world championship to Canada) to allow the bees to break into clusters small enough to produce comb honey, and, consequently, some summers we can not get a single comb except in shallow supers, while at the same time I have got 100 pounds of extracted. What, in this instance, is the ratio of comb to extracted?

W. J. Boughen.

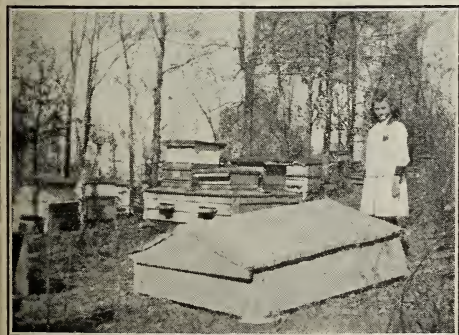
Valley River, Manitoba.

Quadruple Double Walled Hives.

The quadruple double-walled hive shown in the accompanying illustration has been used with success by Hugh L. Lynn, Livia, Ky. There are two

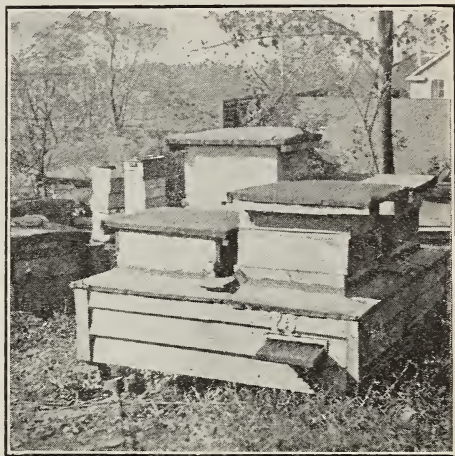


This quadrupled double-walled hive makes it possible to use summer covers and have the hives of different heights. The brood-chambers remain packed the year round.



This winter case (or cover) packed with leaves roofs the quadruple double-walled hive.

entrances on the south, one on the east, and one on the west. For convenience in handling, the four hives in each group are five



Mr. Lynn is careful to have his hives dissimilarly arranged, as A. I. Root recommended many years ago.

inches apart. This makes it possible to use summer covers and to have the four hives at different heights. The roof, or water-table, reaches to within about an inch of the top of this brood-chamber, thus leaving plenty of room for the summer cover, even when no super is being used.

It will be noticed that four of the roof boards have less slope than the lower roofing, the projecting ends serving to hold the winter case in position.

As a winter protection, above this double-walled hive are placed the winter case of leaves and the cover herewith shown. This case is made narrower at the top in order to reduce the size of the roof.

Get Your Price for Honey.

"The Price Question," by A. S. Brown, page 724, December Gleanings, should be read over two or three times by the crazy fellows who take any old price for their honey. To endeavor to educate people to thinking they want honey, is a fine idea, and is my favorite plan of working. The other suggestion: "When wholesaling, sell at wholesale; when retailing, sell at retail," will cure a lot of your honey-selling troubles. I have kept bees for seven years and have had no trouble in cultivating a class of trade that pays 25 cents per section, in spite of the stores and some beekeepers that persist in selling at 15 cents, or two sections for 25 cents. The past two seasons stopped that nonsense. Two years ago I had 1,500 fine sections. There was no

HEADS OF GRAIN FROM DIFFERENT FIELDS

ready sale for me until about Nov. 15, when the hurry-up fellows had disposed of their cheap stores. After that I sold all of mine at 25 cents, and supplied my customers up to Aug. 15, 1918. Hamlin B. Miller.

Marshalltown, Ia.

Honey as a Balance Wheel.

It is not often that one can find flaws in Dr. Miller's "Straws."

So I grasp this opportunity. On page 602, October Gleanings, he says: "There is another reason, likely more important, for having a goodly store of honey in the brood-chamber thru the winter. It serves as a sort of balance wheel equalizing the heat. In ordinary weather the honey is warmed up to something like the temperature of the brood-nest. Then, when the thermometer takes a sudden plunge away below zero, the bees with a big lot of honey do not get the full effect of it because the heat that has been stored up in the honey is slowly given out, and it seems that such a colony should stand the shock better than the one with the empty combs."

This reminds me of the lady that had a newly arrived Swedish girl for a servant. The girl complained of cold feet at night and the lady told her to take a flatiron to bed with her, and in the morning asked her

how she got along. The girl replied: "All right—after I got the flatiron warm, but I nearly froze to death while trying to get it warm."

Why not use a flatiron or bricks instead of honey? It would be cheaper.

The doctor's theory might work all right if he warmed the honey every night, but how about it when the honey gets cold and the bees have not only to warm themselves up (say five pounds of bees), but must also warm up 10 or 20 extra pounds of honey?

Then, too, I don't see how in ordinary (winter) weather the honey can be warmed up to something like the temperature of the brood-nest unless the honey is in the cluster, which would apply to only a small part of the honey in the hive. I think his theory would sound better in mild weather, before a cluster is formed, for then the bees and honey would both be in the same atmosphere, so to speak. If, according, to Phillips, the inside of the hive outside the cluster is of the same temperature as outdoors, the bees would get but little heat (if any) from honey outside the cluster—certainly not as much heat as the honey would get from the bees.

I am not saying anything against lots of honey in the hive for the bees to eat.

Hammonton, N. J.

C. E. Fowler.



THE BACKLOT BUZZER.

Ma says she isn't given to bragging, but she will say this, that she notices that some beekeepers spend more time these days clipping coupons off their liberty bonds than fringe off their shirt cuffs.

IN discussing large hives the editor of the American Bee Journal, December, rather questions the assertions of some beekeepers that claim to have

had queens fill 16 frames with brood. In his opinion part of those frames were rather plentifully supplied with honey. He states his belief that 12 frames, Langstroth size, will provide sufficient room for the best queens. He also says that the younger generation of Dadants are positive that an active beekeeper, with these large hives and a Ford, can properly care for a thousand colonies in different apiaries.

* * *

"REMINISCENCES OF CANADIAN BEEKEEPING."

The December American Bee Journal contains the following interesting statements by J. R. Black:

"When I left the University in 1875, I had a nervous breakdown, which disturbed me chiefly in the prevention of sleep. When the medicine man had diagnosed my case, he said, to my surprise: 'Keep bees.' I asked him, 'Why?' He answered, 'Keeping bees will take you out of your study, away from your books, and give you a sun bath.'—In a few days the doctor came with a colony from his own apiary, and I made a beginning in beekeeping." * * *

"Forty years ago the late D. A. Jones was easily the most prominent apiarist in Canada." His big undertaking was a visit to the East, for the purpose of securing for Canada new races of bees superior to the native ones. These he believed he found in Palestine and the Island of Cyprus, and he accordingly returned with a number of colonies. These strains were somewhat popular for a few years, but when put in competition with the Italians failed to make good. The Cyprians were too irritable and the Palestinians not prolific nor good honey-gatherers. * * *

"While the claim that a purely mated Italian queen will cure any colony infected with European foul brood, may be more than is warranted in the actual issue, it is certain that once such a stock appears in a clean colony its immunity in future is one of the things to be confidently expected."

[We have known of exceptions however. —I. F.] * * *

"No change in Canadian beekeeping of the past half-century is more marked than the Government's relation to it."

* * *

IMPORTATION OF THE ITALIAN BEE.

The history of the importation of the Italian bee is given by C. P. Dadant in the American Bee Journal. The first attempt at exporting them was made in 1843 by Capt. Balenstein of Switzerland, when he employed two men to carry a colony of Italians across the Alps. His inability to keep the

THE BEST FROM OTHERS

Iona Fowls

race pure attracted the attention of Dzierzon, who in 1853 also imported one from Italy and from this one colony succeeded in rearing 30 pure

queens. Owing to natural barriers it has been possible for the Italians to remain so long pure. The bees of Nice are black, and the change from blacks to Italians is gradual from Ospedletti to Genoa. North of these mountains the bees are pure Italians as they are in the entire peninsula. After breeding from this strain for four years, Dzierzon wrote: "This race of bees is still industrious, as beautiful and as docile, as it was the first season. Nay, in several of my colonies, as the result of careful breeding, it is even handsomer,—as I invariably use the brood of the handsomest and most fertile queens for multiplying."

Mr. Dadant states that the first Italian bees successfully imported came from Dzierzon's apiary and were purchased by Samuel Wagner and Richard Calvin, in 1859. The first man to import largely from Italy or Italian Switzerland was Adam Grimm. In 1867 he brought over 100 Italian queens.

Five years later, Chas. Dadant made a special trip to Italy, but failed in bringing more than 20 to America alive. It was not till 1874 that queens were imported in any great numbers. The early failures, however, taught many essentials of transportation for long distances. Dark honey as food in transit almost always caused diarrhea, and all honeys proved less healthful than sugar syrup or candy. Active field bees stand the trip better than young ones, but there should be some young ones with the older ones. The bees are apt to chill and die if the temperature falls below 60 degrees F. When imported they should be kept supplied with plenty of air in special repositories as live animals. Unless there is brood or the food is too dry, water is entirely unnecessary, and pollen is very injurious, especially if in the honey consumed during transit.

* * *

ANOTHER PLAN OF SWARM CONTROL.

"Variation of the Demaree Plan for Swarm Control," by W. J. Sheppard, is an article appearing in the December American Bee Journal. The heading is very unfortunate, as is also the attempted comparison, since the plan given has no relation to the Demaree plan, there being an entirely different principle involved. It is possible that the plan has merit, but as to calling it "Demaree," there are features so radically different that if the plan proves of value, we propose calling it the "Sheppard Plan."

The last of May when the brood-chamber is full of bees, Mr. Sheppard places the queen with two or three frames of unsealed brood in the center of a second story over a

queen-excluder, filling the remainder of the first and the second story with frames of comb or full sheets of foundation. Eight or nine days later all but one of the queen-cells that may be built below the excluder should be destroyed.

As soon as the young queen below is mated and laying, the old queen can be removed. If desired, she may be given two or three frames of brood and a good nucleus started, or she may be left until the combs below are partly filled with brood. Eight or nine days after her removal from the second story, any queen-cells started above are destroyed. It would seem to us that as the colony became more powerful, there would be a chance of a swarm issuing; but, with the old queen above the excluder and a young one below, Mr. Sheppard says there is little danger. Nor is there any likelihood of the colony swarming, during the rest of the season, since colonies headed by such young queens seldom swarm.

He further states that he has found that when the new wire queen-excluder was used the bees, as a rule, would build queen-cells (evidently he intended saying "would not build queen-cells") except when a shallow super was put above the first story and a second wire excluder over that, leaving the queen and brood in the third story. If an ordinary zinc queen-excluder was used instead of a wire one, there was no trouble in getting the bees to start queen-cells.

* * *

"Weak Spots in Inspection," an article in the Western Honey Bee, says Prof. Frank Pellett admits four defects in inspection work: (1) lack of funds; (2) payment of inspectors upon a per diem basis; (3) mistakes and bad judgment of new men; (4) unreasonable and ignorant beekeepers who defy inspectors. To us 1 and 3 seem most serious. If sufficient funds were available perhaps poor inspectors would never be sent out, and yet lack of funds is no valid excuse for their employment. The ignorance of such inspectors has completely quered all inspection work in many localities.

* * *

Wild buckwheat or rabbit brush (botanically, *Eriogonum nudum* or leafless buckwheat) yielded 100 pounds per colony this year in Albert Lane's apiary in Los Angeles County, according to the November Western Honey Bee. This plant usually does not yield enough for surplus, but when conditions are just right a fine white honey of excellent flavor is produced.

* * *

A case of selling diseased bees came to the attention of the South Staffs and District Beekeepers' Association, who decided to make a test case and, if possible, put an end to such a practice, as stated in the October British Bee Journal. The defendant was convicted and fined £3 5s. and costs. This precedent will doubtless be of help to other beekeepers' associations.

In speaking of the "rake off" which the middlemen get on honey deals, the November Western Honey Bee claims "statistics show that the beekeeper is getting but 35 cents out of each dollar paid by the consumer for his honey." According to this, when honey is retailing at 45 cents, the producer is getting less than 16 cents, and when retailing at 30 cents, the producer gets 10½ cents.

* * *

"To make success, buy your bees and supplies right, cut cost of production by less fussy methods, winter in the cellar where successful, and sell as much of your crop to retailers and consumers as you possibly can. Save even fifty cents per colony on wintering and get fifty cents per colony's product above jobbers' prices and you will have success if your location is at all good."—F. W. Lesser, in November Horticulturist and Beekeeper.

* * *

"The great Miller & Lux landed interests in Central California have at last opened their lands to the advent of beekeepers, which they have always refused to do heretofore. It is said that a certain beekeeper has a contract to place 4,000 colonies on these properties the coming year."—November Western Honey Bee.

* * *

"Beekeeping, insofar as the forage is concerned, is practically unlimited in the valley regions between the San Geronio Pass and the Colorado River," says Charles W. Mixer in the November Western Honey Bee. "Mesquite, the chief forage for bees in that section, is more plentiful than it was ten years ago."

* * *

The MacDonald Aluminum Honeycomb Company will soon pass into the hands of a large corporation, it is stated in the November Western Honey Bee. In speaking of the aluminum combs, the editor holds they are still in the experimental stage but considers the invention very valuable.

* * *

"I have found that it has cost me about five cents per pound to produce ripe extracted honey. This is an average for 13 years with an average production of 15 to 20 tons a year."—F. W. Lesser, in November Canadian Horticulturist and Beekeeper.

* * *

"Relaxation in the sugar restrictions may have some effect on the demand for honey, but hardly enough to affect the demand for honey of this year's crop."—M. G. Dadant in December American Bee Journal.

* * *

"Langstroth needs no monument to his memory, except the fact that he gave freely and willingly to his brethren of what he discovered and knew."—John Moore in The Canadian Horticulturist.

THE dates of some of the beekeepers' conventions soon to be held are as follows: Kansas State Beekeepers' Association, Jan. 7 and 8, at the

Chamber of Commerce, Topeka; Pennsylvania State Beekeepers' Association at Harrisburg, Jan. 22 and 23; Michigan State Beekeepers' Association at Lansing, Jan. 21 to 23; Illinois State Beekeepers' Association, at Leland Hotel, Springfield, Dec. 17 and 18; Minnesota Beekeepers' Association, Jan. 2 and 3, at Room 4, Plant Pathology building, University Farm, St. Paul; New Jersey Beekeepers' Association at Trenton, Jan. 16 and 17; Western New York Honey Producers' Association at the Genesee Hotel, Buffalo, Jan. 10 and 11; Ohio Beekeepers' Association, Jan. 28 and 29, at Botany and Zoology building, Ohio State University, Columbus; National Beekeepers' Association at Hotel LaSalle, Chicago, Feb. 18 to 20. It will interest many of the possible attendants of the National meeting to know that Dr. C. C. Miller expects to attend one day.

* * *

The A. I. Root Company of California has recently been incorporated under the laws of California with a capitalization of \$200,000. The officers of the new company are: J. T. Calvert, president; Miss Hazel A. Doyle, vice-president and manager; Ernest Andrew, secretary-treasurer; H. A. Sweet, general superintendent. These officers, with C. F. Stone, are directors of the company. The office and factory are located at 1824 East 15th St., near Alameda St., Los Angeles. All kinds of bee supplies and foundation are now manufactured at the new plant, and the company has been formed for the special purpose of taking care of the Pacific Coast trade and the Pacific export trade. Stock is being sold so far as possible to California beekeepers. It is hoped to make the new company very largely a California institution. J. T. Calvert, treasurer of the A. I. Root Co., who went to Los Angeles early in October to supervise the affairs of the company in its early stages, met with a serious automobile accident Nov. 4, in which he had the misfortune to have his thigh broken, a result of which is that he is still confined to a bed in the Clara Barton Hospital at Los Angeles. His full and early recovery is confidently expected.

* * *

The U. S. Department of Agriculture, in its honey-crop report for 1918, states that the total crop of the past season was about equal to that of the previous year and only a few per cent below the average of the last five years. It is stated that the crop was unusually good in the East and South as well as in the Rocky Mountain region (ex-

JUST NEWS

Editors

decreases in comb and chunk-honey production. The increase of colonies since spring is reported as 16 per cent, this being about three per cent less than the losses last winter. The States which suffered the severest winter losses last year were those east of the Mississippi from Virginia and Kentucky northward and in the Western States from Colorado and Utah northward. At the date of the report, Nov. 21, the condition of strength and healthiness of colonies is 94 per cent of normal, being average for that date. A 100 per cent condition is reported from Oregon, Utah, Colorado, Alabama, and New Jersey, and all New England is close to that figure.

* * *

The annual meeting of the New York State Association of Beekeepers' Societies, held at Buffalo on Dec. 3 and 4, was fairly well attended, and the program brought out much of interest and profit. O. L. Hershisser of Kenmore was elected president, and J. H. Cunningham of Syracuse was elected secretary-treasurer.

* * *

Dr. C. C. Miller is the subject of an exceedingly interesting sketch in the American Magazine for December. Most beekeepers know as much about the Doctor as this article tells, but it will prove exceedingly interesting to a great body of American citizens who are not beekeepers.

* * *

Apiculture in Quebec is going ahead fast. The American Consul there reports that the yield of extracted and comb honey for 1916 was 3,041,930 pounds, while five years before the total annual production was only 1,393,460 pounds.

* * *

The convention of the Wisconsin State Beekeepers' Association, held at Madison, Dec. 5 and 6, was not largely attended because of the influenza epidemic, but its meeting proved exceptionally interesting and profitable. Gus Ditmer was elected president to succeed N. E. France, and Edward Hassinger, Jr., was re-elected secretary.

* * *

At the first annual meeting of the beekeepers of Chenango County, N. Y., Dec. 14, I. W. Bedell of Earlville was elected president, and T. R. Gordon of Norwich was made secretary-treasurer. It proved an excellent meeting of enthusiastic beekeepers.

* * *

The annual meeting of the Nebraska Honey Producers' Association, on account of the influenza epidemic, has been postponed to a future date not yet announced.

cepting Arizona) but poor in the Mississippi Valley region. There was a marked increase in the production of extracted honey and corresponding

QUESTION.—

Every morning on getting up and examining one of my hives, I find a few dead brood at the entrance. The brood is white and very rarely cut in pieces. There are

no symptoms of European or American foul brood, and no cases in the vicinity. You might say that it is chilled or starved brood; but this has occurred in the hot summer, and the colony has always had sufficient stores. Neither is it drone brood. This is the only colony affected.

L. Longtin.

New Orleans, La.

Answer.—The brood has evidently been overwintered. Sometimes in a hot climate, if the sun shines directly on the side of a hive, the brood next that side will be killed and drawn out at the entrance. In a large apiary there may not be found more than one or two in that condition, all depending on the exposure to the sun, amount of ventilation, and size of colony.

Question.—In books and in Gleanings various instructions are given about making increase from strong colonies. Now, can you tell us beginners what constitutes a strong, a medium, and a weak colony, in terms of comb-surface area and the density of the bees covering it.

Santpoort, Holland.

W. B. Wallace.

Answer.—When speaking of colonies of bees the terms "strong," "medium," and "weak" are used very loosely. Much depends upon the size of the hive one is using, and upon the time of the season. Since you speak of making increase you are doubtless thinking of warm weather, when the same number of bees would be scattered over a much larger space than they would occupy on a cold day in the fall. In fact, a colony that on a warm day would appear to fill a hive completely, might during cold weather cover no more than five or six frames. During the summer when the hive cover is first lifted, and before the bees have had time to rearrange themselves after their disturbance, if it is found that the bees cover all of the frames clear to the outside, it would be pretty safe to consider them a strong colony even before removing any frames from the hive. On removing them, however, one would find the bees covering practically all of the combs present in an ordinary ten-frame standard hive. If, on this first glance, it is found that the bees cover no more than seven or eight frames, we would call that colony medium; if less than this, weak. As previously stated, it is very difficult to give definite figures for a question of this sort, some beekeepers having colonies much larger than those we have indicated.

Questions.—Might I request your indulgence to answer me a few questions concerning the article, "Swarm Control," which appeared in June number of Gleanings? (1) After removing original colony from the top of the hive at the end of eight days, will it require any further precautions for swarming other than breaking down cells when the same

GLEANED BY ASKING

Iona Fowls

are found? (2) This colony produces the crop; will as large a crop be produced per colony as if the plan had not been followed? (3) May this plan be followed more than once in the same season? (I realize that if so, there would naturally be a great diminution of the crop.) (4) If your plan is strictly followed, as set out in this article, will the swarming impulse be always satisfied and swarming be completely eliminated? (5) If the plan be practiced with a given number of colonies, can the number be doubled and a normal crop expected the same season?

S. J. Manchester.

Toronto, Can.

Answers.—(1) Since only capped cells were removed at the first manipulation, one should expect to find more queen-cells in the top story at the end of eight days. All of these may be removed but one. In the lower hive it is very rare that further cells will be found. (If cells are found in the lower hive, it is usually on account of a failing queen or because young bees were left below at the time the brood was raised. For best results only field bees should be left below.) (2) Larger, for no time has been lost by loafing, that generally accompanies swarming. Also, the colony is larger than would be the case, had they swarmed naturally. (3) It should be noted that this plan as described is employed only after queen-cells have been started and usually not until after they are capped; therefore, since the colony seldom starts other cells, after these manipulations, there would be small chance of repeating the operation with the same colony. It is possible, however, that one might vary the method by applying before queen-cells are started and thus make repeated increase, tho we believe there are much better ways of making rapid increase. The main idea of this plan has been to prevent or keep down natural increase, not to make more. (4) No, there will be a few rare exceptions. (5) We believe any colony will produce more honey, if kept contented and no increase made; still we know of no plan that will result in as large a crop, and at the same time allow increase if desired.

Question.—In Gleanings, page 682, a beekeeper of 50 years' experience claims the bees carry out honey in the spring to make room for new honey. Miss Fowls says they do not. What, then, I ask, are the little white grains, that so closely resemble granulated sugar, that they do carry out in the spring? If the frames are examined at this time, some will be found quite dry, but containing many of these little grains. Is not this granulated honey?

Cincinnati, O.

J. E. Roebeling.

Answer.—At any time of the year, regardless of the moon, when bees are working on a coarse-grained candy or granulated honey, more or less of it falls to the hive floor; and whenever the weather is warm enough these particles are hauled out of

the entrance. This, in our opinion, is removed simply because, unless sufficiently moistened, it is not in suitable condition for the bees' use, and not because there is nectar in the fields. In fact, bees often store new honey right in the same cells on top of the candied honey. If combs of candied honey are removed from the hive, uncapped, dipped in hot water, and returned to the hives wet, much of this honey will be saved that would otherwise be wasted.

Question.—Why are drones tolerated in colonies as late as December 6th? Claude Barker.

Avilla, Mo.

Answer.—Drones may be found late in the fall, if there is a late fall flow or if the bees are fed regularly. Otherwise, their presence would indicate the absence of a good queen, and the colony would be found to be queenless or possessed of a failing queen, drone-layer, or laying-workers.

Question.—Three of my colonies have foul brood. Do you think that by wintering them with healthy ones in the same room of the cellar, I endanger the healthy colonies? J. B. Bowman.

Bridge, Mont.

Answer.—If right conditions could be maintained so that the bees would remain contented in their hives, there would probably be no spread of the disease. Still, we would not care to take chances on such a proposition.

Question.—At Grand Rapids I became acquainted with a beekeeper that advocates the attic way of keeping bees with no swarming, but I would like to look up the matter some before deciding on *no-swarm hives*. Will you kindly give me your opinion? Wm. J. Runyan.

Coopersville, Mich.

Answer.—Bees may be kept in the attic; but this in no way prevents swarming nor has there yet been invented a practical non-swarming hive. From your allusion to Grand Rapids we rather suspect you have in mind the Pearce new method of beekeeping. If so, we suggest that you would doubtless be interested to read a book review as given on page 633 of the October number of *Gleanings*.

Questions.—(1) Would you expect an untested queen from the mails, introduced late in the fall after all brood-rearing had stopped, to do as good work the next year as one that had been introduced earlier and had layed a few weeks? (2) I noticed at different times, during the honey flow in some colonies, the bees working under the canvas quilts made a sound not unlike rain falling on a newspaper. I thought they were propolizing; but now in fall feeding, with quilts off and clean feeder-boards on, I notice the same sound. The bees are not flying, so could gather no propolis. Could you tell me what they are doing when making that sound? E. C. Hardie.

Burford, Ont.

Answers.—(1) When untested queens are introduced as late in the fall, it sometimes happens that they do not lay at all until the following spring. However, if fed for a time, they may sometimes be induced to lay even tho it is late. Whether or not they lay in the fall, we believe that there will be no difference in their work the following spring. (2) This sound may result from

the bees performing the washboard movement, the cause of which has never been definitely proved, yet we do not know. To our knowledge they make no strange sound when propolizing, for the propolis when gathered is soft.

Question.—Please let me know whether it is injurious to people to eat honey that has been thru a solar wax-extractor. Margaret Ullman.

Illinois.

Answer.—Not in the slightest. The honey will be very thick and have a waxy flavor that is rather pleasant to many, some even preferring it to a honey of more delicate flavor.

ANSWERED BY DR. C. C. MILLER.

Questions.—(1) Would you please tell me how to rear queens for use in my own apiary next year, as some of my queens are getting to be quite old? (2) How old should a queen be before she is replaced by a young one? (3) How may I work from hybrid bees to Italian? Can I put tested Italian queens in the hive in place of the hybrid queen, or will the hybrid bees all have to be killed off first? (4) Which is the best way to buy bees—in pound packages or in nuclei? G. T. Pettys.

New York.

Answers.—(1) In the limited space allowed here it would be impossible to tell very much about rearing queens, as it would take a whole book to go into the subject fully. Indeed two very good books have been published on queen-rearing, the first by G. M. Doolittle and the other by Frank C. Pellet, and you can get either from the office of *Gleanings*. I might say briefly that one way for you to do is as follows: see that the colony containing your best queen is built up very strong, giving it sealed brood from other colonies if necessary. When the honey flow begins, take out two frames with adhering bees, the queen on one of them, and put them in an empty hive on a new stand. Shake into this nucleus the bees from one or two additional frames for good measure. Ten or eleven days later return the old queen to the old stand, taking away the hive containing the brood and queen-cells, and divide this latter into as many nuclei as you can, each nucleus having two or more frames of brood, and see that each nucleus has a queen-cell centrally located where there is no danger of its being chilled. In about three weeks from the time you began operations you should have a laying queen in each nucleus. (2) Opinions differ, and localities differ. In some localities it may be better to requeen annually; in others better not. In my own locality, which is probably much like yours, I never requeen at all, unless there is some fault to find with the queen besides old age, leaving the bees to requeen when they like. (3) If you introduce an Italian queen into a hybrid colony, you need pay no attention to the worker bees. In a month or two the bees of the old queen will be gone, and all the workers will be daughters of the new queen. (4) If you get them near by, the nucleus may be better, and 2- or 3-pound packages if you send a longer distance.

"IT is Dec. 12, and we have had six inches of rain and spring is here. Outdoors is a carpet of green and bees are working on blue gum (eucalyptus) and some other plants.'"—J. G. Harman, San Diego County, Calif.

BEES, MEN AND THINGS

(You may find it here)

"How is this for a story! My next-door neighbor, a man of veracity and keen discernment, informed me that his great Rhode Island Red rooster, a proud handsome bird of two summers, had swallowed one of my honeybees and had gone crazy. For three long days my neighbor could distinctly hear the bee buzzing in the crop of the noble bird. At last he could stand it no longer; so, on a Sunday morning when the family was away at church, this good neighbor decided to end the misery of the rooster and also to liberate the unfortunate prisoner. First, this gallant but now crazy bird was made unconscious by decapitation; then his crop was cut open, but before the operator had time to decide what should be done to the inmate, the honeybee, overjoyed by its freedom, made a bee line for the hive. This is surely a new, tough specimen of a honeybee. Think of it! Three days in the crop of a rooster without losing consciousness, and when liberated returning at once to its old job of making the world a little sweeter! If this stunt is repeated I shall call this strain my Jonah bees.'"—H. W. Watjen, Bristol County, R. I. (Watjen is a preacher, too.—Mng. Editor.)

"Last year we sold honey to grocers in pint Mason jars. This year on account of the increase in the cost of jars and higher price of honey we desired a container holding less than one and one-half pounds and cheaper than the glass jars. In the water-proof fiber cartons we found a container that has proved perfectly satisfactory. At first, the grocers did not know whether the honey would sell as readily as in glass jars and ordered only a small quantity. Filled with white-clover honey the demand has been very good, and not one complaint has been made. The grocers like these, for they do not leak and will not break. They do not have to be washed before filling and so require less work than the glass jars. * * * Forty-three of my hives were packed for wintering and fence posts, with wire stretched, set on all four sides and fodder leaned against the wire to make a wind-break.'"—D. F. Rankin, Jackson County, Ind.

"I started in winter quarters last season with 40 ten-frame hives, and lost only one. The temperature was below zero for weeks at a time. I used no packing whatever. I think my success was due largely to leaving the bottom-boards with the large entrance open the full width of the hive so that mois-

ture could escape. I had boards 10 inches wide and a little longer than the width of hive laid against the hive over the entrance so that no wind could

blow in. I have some hives with metal covers and some with exselsior covers and did not use any supers above filled with leaves. I think if the entrance is reduced the supers filled with some absorbent above are necessary to take care of the moisture. Why should I change when I am very successful in wintering as above described?"—Earl B. Waggoner, Madison County, Ills.

"The Chinese consider 6 to 10 pounds of surplus honey a good catch. They are very careless about their bees and let them come and go according to the 'good luck' of the family. You find them in dirty old tubs, under the eaves of the houses, hanging over a pigsty, in a hole in the mud wall—here, there, and everywhere. The last colony I purchased cost me 30 cents in gold. I took it out of the kitchen cupboard; bees on one side of the shelf and the basins, etc., on the other side. Next day I was taken to see another colony. I found it in an old box under the bed, but the people were unwilling to sell thinking that to disturb the bees would interfere with the 'luck' of the place. The bees had been under the family bed for seven years, and the neighbors came round to protest when I thought of removing them. It is not at all unusual to find two queens in one tub. They seem to work on merrily together. Chinese bees are usually quiet and easily managed. I lift them about in handfuls and rarely need to use smoke.'"—Edward J. Blandford, North-West Kiangsi Mission, Wucheng Ki, China.

"On the evening of Nov. 19 I put my 22 stands of bees in the cellar, very heavy with stores of about 100 pounds each. The unusual weight unfortunately toppled over their base and all fell forward on their fronts with tops and bottoms off, and the cellar was so full of bees that the electric light and kerosene lamp could hardly be distinguished. With the help of a neighbor I had them all back by 1 o'clock in the morning. We walked in bees and mashed them, putting back the covers and bottom-boards, and I swept up about two quarts of dead bees. How they ever got back and were satisfied I am unable to tell, but two days later the cellar was as quiet as tho nothing had happened; and hardly a hum is now perceptible in the cellar, with the temperature ranging from 47 to 53 degrees.'"—Hamlin B. Miller, Marshall County, Iowa.

"My rather carefully kept record shows this to have been the poorest year for bees since 1884—82 per cent winter loss—actual, not estimated. With 20 scattered apiaries

under my care I could come pretty close to a census. * * * Foul brood is also firmly established here. In treating it the queen seems to be the point to start from in our research, and the flow of nectar certainly has a lot to do with both the control and the incidence of European foul brood. I noted with much interest that after the cold winter young and high-grade queens became drone-layers. There was a very great mortality of queens as brood-rearing started, and laying-workers would appear in 48 hours after the death of the queen."George W. Adams, Essex County, Mass.

"I believe, if we could persuade hive-makers to make up hives full one and one-fourth inches thick, the winter-case problem in our latitude (39) would be practically solved. You ask why? I had occasion to notice many hives in Wirt and Ritchie Counties, W. Va., and invariably the old home-made hives, made from thick lumber, $1\frac{1}{4}$ to $1\frac{1}{2}$ inches thick, and protected from windsweep, were the ones that had lively bees in them after the hardest winter ever known here."—E. R. Ferree, Wirt County, W. Va.

"We have three pests to contend with here, namely: foul brood; the wasp, for which we bait a wire flytrap with a small piece of salmon; and a very small ant. * * * Winter packing is hardly necessary for this latitude, as I have a number of stands that have wintered well under a low shed closed on three sides but entirely open to the east, this being the direction from which we seldom have any wind. Bees remain in this shed the year around."—J. W. Beckley, Marion County, Ore.

"In the field around me sweet clover grows eight and nine feet high, and last year I cut and measured one stalk nine feet, ten inches. Along the roadside, it grows to that height. * * * Before tacking the metal on my covers I place several thicknesses of newspaper between the wood and the metal. I thought this would act as extra insulation. As this cost nothing, I thought I would hand the idea along."—Maurice Grinbly, Toronto, Ont.

"The season just past has been one of the most peculiar for several years. The most peculiar feature was that from Apr. 2 to Aug. 25 there was not a day but that the bees had plenty of honey to gather, something I never knew before. However, the honey crop fell short of the average. The spring was exceptionally favorable, but the summer very unfavorable because of cold and wet."—M. E. Ballard, Delaware County, N. Y.

"I believe the fact that we are called 'beekeepers' even by ourselves has belittled the honey-producing industry. In using the term 'beekeepers' and 'beekeepers' associations' the public is not brought face to face with the product of our business. We

are 'honey-producers,' and should call ourselves and our associations such."—Ivan Whiting, Sheboygan County, Wis.

"We have this year produced 102,616 pounds of honey from about 868 colonies spring count, and finished the season with 1065 colonies that have the largest winter stores ever left, nearly five combs to each colony, besides all they have in the brood-nests, so as not to draw on the sugar supply. I have bought out my father's interest in the business."—E. F. Atwater, Ada County, Ida.

"This winter is starting in much the same as last winter did, with snow from Dec. 1 on. If the snow stays it will be much better than without it. I had to double up half of my colonies for stores. Applied for sugar cards in September and received them in late November."—Robt. Elwell, Providence County, R. I.

"Here in eastern Pennsylvania the bees that survived last winter's severe losses have done well. Many lost all the bees they had. But I recall one beekeeper who had extra-good wind-breaks and his colonies came thru in excellent condition."—Elwood Bond, Monroe County, Pa.

"All the honey has been sold at a good price. At a sale here bees in old boxes sold for \$9.00 per hive. A few years ago I bought a hive for \$1.00. So you see the bee business is looking fine here."—S. T. Bowman, Morris County, Kans.

"The beekeepers around here had a very successful season, generally speaking. My own averaged more than 100 pounds started on foundation. These were packages from the South."—C. C. Crosskill, Clarksburg, Ont.

"This has been an extra-good year for honey with us. All sold at from 25 to 28 cents for clover and basswood, and 21 cents for buckwheat."—J. I. Gillman, Locust Hill, Ontario, Can.

"The value of clover alone in adding nitrogen to the soil would justify its use in the crop rotation, as proved by tests here." Bulletin of the Ohio Experiment Station.

"The real beemen are nice fellows. A nervous and irritable man does not stay with the bee work long, as the bees move him on."—E. E. Mott, Cass County, Mich.

"My 20 colonies made me a net profit of \$319.55 this year. I have the only bees in this country."—C. S. Hall, Ball's Bluff, Ky.

"We are having good rains here and look for a bumper crop."—W. E. Tuttle, Monterey County, Cal., Nov. 28.

"This is the first time in 30 years I have fed bees for winter."—Gene Rogers, Sebastian County, Ark.

IN the month of October, 1878 (just 40 years ago as I write), when we were putting up the first brick building just opposite our railroad depot, I had the mason put in the middle of the east front of the building,

clear up to the top, a block of sandstone with an old-fashioned straw hive carved on it and right above it were the words in large letters, "*In God we Trust.*" This inscription is, of course, still there. It is so close to the Baltimore & Ohio Railroad that the passengers who go by daily are sure to see it as they take note of the building that is now simply a part of the other buildings of the A. I. Root Co. During the years that have passed there have been many comments in regard to this inscription that has appeared for so many years on the face of our coins. Years ago they used to laugh about it; but as time passed and the business grew, and its reputation spread further and further, I do not know but the great busy world began to think it was not only a good thing to have "*In God we Trust*" stamped on our coins, but that it would also be a fine thing if *more business houses* had it over their doors, and better still, inscribed on the hearts of the proprietors.

I recently saw in the *Sunday School Times* a statement to the effect that the *Times* people had published a little book giving the names of the various business firms who had prospered and flourished for a long period of years; and they paid strong emphasis on the fact that these old business houses that *continue* to grow and prosper were, almost without exception, under the management of a Christian man, and, with few exceptions, a man or company of men who are regular attendants at church and Sunday-school, and many of them prominent workers in Sunday-school. Heinze, the pickle man ("57 different kinds of pickles"), is even yet, in his old age, a great Sunday-school man; and just recently he gave a splendid address to a great convention of Sunday-school workers in some eastern city.

Some years ago the skeptics used to be fond of saying that there was more crookedness among church members than



We trust in God.—I. TIMOTHY 4:10.
I have seen the wicked in great power, and spreading himself like a green bay tree. Yet he passed away, and, lo, he was not.—PSALM 37:35.

among any other class of people in the world. I have not heard this lately, but occasionally we hear something of the sort. The whole wide world has begun to realize that not only peace of mind and tranquillity

of soul come from trusting in God, but also financial prosperity—a prosperity that stands the assault of years.

Well, what brought this whole matter to mind was that at one of our stockholders' annual meetings one of the speakers, in commenting on the legend cut in stone over our first building, said that some years ago there was much talk about adulterated liquid honey and honey in the comb manufactured from paraffin and glucose without the bees ever having had anything to do with it. Some of our older beekeepers will remember about our offering \$1,000 for a single pound of manufactured comb honey, and afterward \$10,000. Of course, not even one pound of bogus honey was ever gotten hold of. Well, this talk recalled the fact that once A. I. Root was accused of making honey mostly or entirely of glucose, etc. Yes, it got into the papers also; and one editor came down to our place and charged me with it. I told him he was welcome to visit the premises and go everywhere and look everywhere. When he asked me if I had any glucose on the place I showed him a little bottleful—perhaps half a pound. On another occasion somebody on the street declared that A. I. Root's honey was bogus and all of it manufactured. A lady who had a daughter for many years in my employ called him to order right there on the street. She said in substance:

"My good sir, my daughter is in the employ of A. I. Root, and has been almost ever since he commenced business. If he were doing anything of that sort, do you think I would consent to let her work for him, or that she herself would consent to continue in the employ of such a man, especially when right over the front of the building, cut in sandstone, is the motto, "*In God we Trust?*"

Now, friends, I suppose you have the matter clearly before you. Would it not take considerable "cheek" for any man

in any business to put up a motto like that and then proceed to defraud and cheat his fellow-men, especially if his business continued to grow and prosper year after year? Falsehood, "camouflage," and some others of these new things just started with the war, deceive a good many and succeed for a time, in the business of cheating and swindling; but all such enterprises soon get to the end of their string.

As I write on this 2nd day of October, Germany is fast approaching the end of the string I have been speaking of. She has managed to get along in her iniquitous ways for an unusual number of years; but her doom is now coming; and, as I write, it seems to be coming swifter and faster every day. Dear reader, no matter whether you are old or young, man or woman, boy or girl, will it not pay you to remember the legend on the coins in your pocket—"In God we Trust?" and may this not only be written and stamped indelibly in the innermost recesses of your heart, but may it be your constant effort both day and night to live up to the little precept and to make the great God, who rules in heaven as well as here on earth, your daily confidant, counselor, and friend.

THE SUNFLOWER: NOT ONLY MILK AND HONEY, BUT PERHAPS BUTTER ALSO FROM THE SAME PLANT.

The article in our issue for October in regard to sunflower for silage has brought forth quite a little correspondence. About the first of September I planted some seeds of the Mammoth Russian sunflower to see what it would do so late in the season. Today, Nov. 8, some of the plants are nearly two feet high; and one of our cows eats them with avidity. I first gave her some sunflower heads that I found in a neighbor's garden. These she devoured eagerly, and afterward chewed up the stalks that bore immature heads. After having got this taste, she eats my young plants eagerly, and "calls for more." The other cow (we have only two) does not seem to "catch on," and the same is true of the horses, from which I am led to think it is somewhat of an acquired appetite like sweet clover.

A Government bulletin, No. 687, records some experiments in regard to using oil from sunflower seeds for human food. This oil compares favorably with any other food oil known; and if it can be produced cheaply enough, it would be very likely to take the place of butter. Since butter is so high just now (60 to 70 cents) it seems quite likely the oil from sunflower seeds

might be eatable. I found the clipping below in the *Plain Dealer*:

"We passed thru an immense field of sunflowers. I looked inquiringly at Richter. 'We extract oil from them,' he explained. 'You will see thousands of fields just like this one all over Germany.'"

I have read somewhere that in Russia sunflower seed is a great staple, the people using the meats in place of animal food, and also using oil. We have some reports in regard to 100 bushels of seed to the acre. From what I can gather, my impression is that it is only occasionally that sunflowers yield honey in any considerable amount. I shall be very glad to get additional information.

The Government bulletin, dated May 25, reads as follows:

"The crop was harvested for silage on September 22, at which time on about 50 per cent of the plants the seeds were well formed and in the 'dough' stage, while the remainder were not so nearly matured. The yield from the plot in which the plants were thinned to 15 inches was at the rate of 16.91 tons per acre, and from the plot thinned to 6 inches the yield was at the rate of 19.42 tons per acre."

My little planting has demonstrated what has already been said, that the sunflower stands frost much better than corn. At this date, Nov. 9, we have had no severe frosts here in our locality; and light frosts that cut down the late corn seem to have had little or no effect on the sunflowers.

THE ELECTRIC WINDMILL; FLORIDA GARDEN.

Day after tomorrow is Thanksgiving day; and it *should* be, and God grant that it *may* be, the greatest *world-wide* Thanksgiving the whole wide world has ever known—a thanksgiving with less "booze" than the world has ever known in proportion to the population. Now to come away down to *my* little world, in my modest Florida home you may care to know what makes me more than ordinarily happy. I found my good friend Kaiser had the electric auto in fine trim, with the batteries well stored and the windmill rejoicing (?) in a new rubber *endless* belt. The common belt wore out during the summer, and the Goodyear Rubber Co. of Akron, O., made us a rubber belt which they think will stand Florida warmth and winters. Remember, this is the second auto on the whole face of the earth (so far as I have been able to learn) that is propelled by wind power. I feel a thrill every time I look up at the beautiful windmill; and every mile I ride in the electric auto I have a *succession* of thrills. Both of these beautiful pieces of machinery are but the realization and culmination of the two playthings of my boyhood.

I think I may confess to you, dear friends, one *more* reason for thanking God

from the very bottom of my heart. The *companion* of my boyhood and kind counselor of my early manhood is still with me by my side; and still to me, as described in the good book, "Her price is far above rubies;" yes, indeed, or wind-mills and electric autos.

How about the garden? Well, Wesley was offered such big pay (on account of the war) that the garden was nearly a "wilderness of weeds" when we arrived. He didn't even get around to harvest the corn; but the Florida rats did a very good job, leaving us the cobs to show there *was* corn. There were two crops that thrived in spite of the wilderness of weeds—the roselle, or "Florida cranberries," of which I have said so much in past winters, and sweet potatoes. The roselle was ready to gather when we arrived. The sweet potatoes came up all over "volunteer," and in spading up the beds for our crops we find more fine potatoes than we can use at present. Some time in October Wesley planted one bed of Irish potatoes, and there are a few now as large as hens' eggs; but as they are growing thriftily it will not pay to disturb them just yet. Irish potatoes in the groceries are 75 cents a peck, and *some* of them are badly scabbed at that. In the last 10 days we have planted peas, corn, snap beans, turnips, onion-sets, etc.; and with the abundant summer showers, all (except the corn) are up so as to present a most beautiful picture from the top of the tower of the windmill, 50 feet high. Why does not everybody down in Florida grow his own potatoes (and other garden stuff) as we do, instead of paying 75 cents a peck for poor ones? I suppose it is because they think it is "too much trouble," and do not *love the work* as I do. Of course, we may have a frost as we did a year ago; but we have managed so we have suffered very little loss by frost so far during past winters.

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GROWING YOUR OWN GARDEN SEEDS.

Once more I am strongly impressed with the importance of saving seed from your

own garden, especially with beans, peas, and corn. When gathering beans and peas for the table or market, save carefully for seed every pod that is overripe, and when planting time comes another season, just contrast these "home-grown" with what you buy of the average seedsman. Very often we put in an extra amount of seeds, because we have learned by experience that many seeds don't grow. *Should* they happen to grow, however, you have an expensive "thinning out" of the plants. I have just been hoing a row of lima beans, the seed having been brought from Medina. I put one bean just where I wanted a plant, and there is hardly a missing plant in the whole long row. It is just the same with all other seeds of our own growing. Now look at your seed catalogs, and see what you have to pay for peas, beans, and corn.

Just a year ago today, we had that awful freeze, the worst in Florida for about 25 years. Today, as I write, the mercury is 80, and tomatoes, beans, etc., are unharmed so far. New potatoes are 90 cents a peck; potatoes shipped in from the North, 70 cents.

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A. I. ROOT.

AROUND THE OFFICE

M.-A.-O.

Floyd Markham, what's secretary of the National Beekeepers' Association in a letter to Gleanings winds it up this way: 'P. S. to M.-A.-O.—I got a dandy skunk last week but I didn't try any of Mel Pritchard's 'scentsless' tricks. No! I just kept to the windward and basted him on the head with a stick; but 'just afore I done it' I run away.'

Mel, I aint myself a carin about it at all whatever so I aint, nor what else ever happens to you. But are you a likin the way Markham spelt that word that means havin no scent? I wouldn't like the sound of it if I was you so I wouldnt.

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(Continued on page 55.)



The "BEST" LIGHT

Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

BEEKEEPERS
ATTENTION!!!

The use of the best and most up-to-date equipment is a big factor in successful honey production.

Begin 1919 preparations by ordering equipment now. Delay spells loss.

We have a large stock of high-grade supplies. Will be glad to quote prices on receipt of a list of your requirements.

Western Honey Producers

1929-1931 Fourth Street
Sioux City, Iowa

IRON AGE
GARDEN TOOLS

Answer the gardener's big questions: How can I grow plenty of fresh vegetables with my limited time? How can I avoid backache and drudgery?

IRON AGE Wheel Hoes and Drills

Do the work ten times faster than the old-fashioned tools. A woman, boy or girl can push one. Many quickly-adjusted combinations. Light, strong and durable.

Will help you cut the high cost of living. Broad range of prices. Write us for free booklet today.



No. 301
Double
or Single
Wheel Hoe

Bateman Mfg Co., Box 44G, Grenloch, N. J.

BEE-SUPPLIES

FALCON LINE

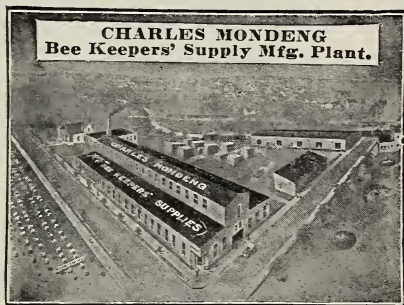
We carry the largest supply in our section. Send us your inquiries.

Lowest Prices, Quality Considered

C. C. Clemons Bee Supply Co.

128 Grand Ave.

KANSAS CITY, MO.

BEE SUPPLIES
AT WHOLESALE

All boxed ready to ship at once; 275,000 Hoffman frames, also Jumbo and Shallow frames, of all kinds, 100 and 200 in a box. Big stock of Sections, and fine polished Dovetailed Hives and Supers. Send for a price-list. I can save you money.

Will Take Beeswax in Trade at
Highest Market Price.

Charles Mondeng

146 Newton Ave., N. Minneapolis, Minn.

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AROUND THE OFFICE

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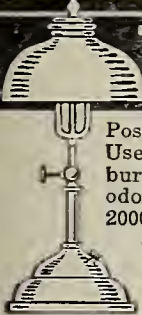
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IRON AGE Wheel Hoes and Drills

Do the work ten times faster than the old-fashioned tools. A woman, boy or girl can push one. Many quickly-adjusted combinations. Light, strong and durable. Will help you cut the high cost of living. Broad range of prices. Write us for free booklet today.

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Bateman Mfg Co., Box 44G, Grenloch, N. J.

BEE-SUPPLIES

FALCON LINE

We carry the largest supply in our section. Send us your inquiries.

Lowest Prices, Quality Considered

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BEE SUPPLIES AT WHOLESALE



All boxed ready to ship at once; 275,000 Hoffman frames, also Jumbo and Shallow frames, of all kinds, 100 and 200 in a box. Big stock of Sections, and fine polished Dovetailed Hives and Supers. Send for a price-list. I can save you money.

Will Take Beeswax in Trade at Highest Market Price.

Charles Mondeng
146 Newton Ave., N. Minneapolis, Minn.

PENNSYLVANIA BEEKEEPERS

We can supply you quicker and better than the factory or any of its branches. Order your supplies now. Right near the middle of the State, with four railroads going in all directions, we promise quick deliveries.

CARLOADS OF ROOT'S GOODS

Our Special Catalog is something new. They are being mailed now. If you fail to get yours, drop us a card with your name and address. Just the things needed for beekeepers in Pennsylvania, not a lot of other things to confuse.

Our 22 years' experience in beekeeping and selling carloads of bee supplies are combined in the preparation of this circular.

THE NEW SIMPLEX SUPER

is a feature. It is the P super for the Plain Square Sections, greatly simplified. Section Holders and Fences full length, doing away with the fussy wedges, etc. Hives, Sections, Foundation, Extractors, Smokers, etc.

PROTHERO, BAILEY & GOODWIN

*Pennsylvania Distributors of
Root's Bee Supplies*

DUBOIS :- PENNSYLVANIA

Around the Office—Continued

gettin help and with the rest of the world. He seems to be plain spoken too for the other day when writin to a complainer of his'n concernin his help leavin him and a good share of the human race risin up agin him, Latshaw said: "I assure you that nothing is being done intentional to cause trouble on my part as I have plenty of trouble in the natural course of events without that." Then he tells about honey bein stolen from him and his enemies a pesterin of him and says: "However, now I am getting a line by which I may be able to be dragging them around by the hair of the head before long, then I look for smoother sailing for awhile at least." I can't help warmin up to Latshaw when I read these deep down sentiments of his, for they ring true and bile up out of real experience. They aint jest theory like so much beekopin literatoo is. Mr. Latshaw knows what he's talkin about, and knows trouble when he sees it, I bet. A man like me or Latshaw knows exactly what it is not to do nothin intentional to cause trouble on our part and yet get it in the natural course of events in bucketfuls con-

(Continued on page 57.)

SWEET CLOVER

White Blossoms; the greatest money-making crop of today. Big money for the farmers who grow it. Builds up land rapidly and produces heavy, money-making crops while doing it. Excellent pasture and hay; innoculates land for alfalfa. Easy to start; grows on all soils. Our seed all best scarified hulled, high-germinating and tested. Quality guaranteed. Write today for our big, Profit-Sharing Seed Guide, circular, free samples. Address
American Mutual Seed Co., Dept. 951 Chicago, Illinois

Hill's Evergreens Grow



All hardy stock—twice transplanted—root pruned. Protect buildings, stock, crops. Hill's Evergreen Book, illustrated in colors, free. Write today.
D. Hill Nursery Co., Box 2463
Dundee, Ill. Evergreen Specialists

SWEET

CLOVER

Easy to start. Grows anywhere. Not only a good fertilizer, but produces immense crops. Big money-maker. Crops worth \$50 to \$125 per acre. Greatest forage plant that grows. You cannot miss it by sowing our superior scarified seed.

A. A. BERRY SEED CO., Box 966

Don't delay writing for our 1919 catalog (116 pages) and circular giving full particulars. We can save you money on guaranteed seed.

CLARINDA, IOWA

THE DOMESTIC BEEKEEPER

Successor to the Beekeepers Review, published monthly at Northstar, Michigan, at \$1.00 per year, by E. D. Townsend. Published for the honey-producer, by a honey-producer. Every honey-producer should know and subscribe for the *Domestic Beekeeper*. The *Domestic Beekeeper* will help you to produce a crop of honey; when harvested, it will help you to dispose of it to a good advantage. Thousands of dollars have been saved beekeepers by following the advice of the *Domestic Beekeeper* in the sale of honey. If you have received less than 25c per pound, in 60-lb. cans, for your best 1918 crop of extracted honey, you are likely not a subscriber to the *Domestic Beekeeper*, or, have not followed the advice of the Editor. Isn't it about time that you get out of that "rut" and sell your honey to a better advantage? The *Domestic Beekeeper* for 1919 will advise you from month to month what the Jobber is selling for and instruct you how to secure HIS price for your product, which is usually two or three cents per pound more than HE will pay you. Get next to this better way of selling before your 1919 crop is ready for the market, by subscribing for the *Domestic Beekeeper* at once.

From many kind letters received, we will submit three late ones which will give the reader a fair idea of what our subscribers think of the *Domestic Beekeeper*.

Remember that it does not cost *Domestic Beekeeper* subscribers a cent to sell their honey to a good advantage, as we advertise it for them free of cost.

Why not every one of the readers of GLEANINGS dig up a dollar and send it in at once and secure the twelve numbers of the *Domestic Beekeeper* for 1919. The three letters referred to above follow:

Liberty Center, Ohio, Nov. 12, 1918.

The *Domestic Beekeeper*: I have for sale 16 60-lb. cans of clover honey that you may list in your free list of those having honey for sale. I take this opportunity to thank you for selling my last year's crop.

I think the late W. Z. Hutchinson and yourself have done a good many more kind acts to beekeepers than any other publication I know of. I expect to read your *Domestic Beekeeper* as long as I keep bees and can dig up the price. I surely appreciate your kindness.

S. A. PALMER.

Continental, Ohio, Oct. 31st, 1918.

The *Domestic Beekeeper*: Please discontinue my name in your honey-for-sale column, for I am all sold out and am returning checks every day. Wish I could have filled all the orders which came, as they surely came with a rush,

and one large order by telegraph, which was filled the next day.

Your journal is surely the best honey-market journal in the whole country, as it surely keeps tab on the market.

Had I seen the October number before naming a price, would have asked 27c and am sure it would have all gone at that price, as I could have sold three times as much at the 25c mark.

Enclosed please find a dollar for 1919 subscription to the *Domestic*, and thanks for your valued help.

JUDSON A. JONES.

Bagnall, Michigan, Nov. 11th, 1918.

The *Domestic Beekeeper*: Please discontinue my name in your free column of those having honey for sale, as I am all sold out. Sold my white and buckwheat extracted honey in 60-lb. cans f. o. b. here at 25c per pound. Thanking you for past favors, I remain,

C. J. FREEMAN.

Send in your dollar at once. to

The DOMESTIC BEEKEEPER, Northstar, Michigan, for your 1919 subscription.

BEES, QUEENS AND SUPPLIES

A FULL LINE OF ROOT'S GOODS. A COMPLETE LINE MANUFACTURED BY US FROM CYPRESS, THE WOOD ETERNAL. NO SUCH HIVE COVER ON THE MARKET. SEND FOR CATALOG. BEESWAX WANTED.

THE PENN COMPANY, PENN, MISS.

Important for New York, Pennsylvania and New England Beekeepers

We carry a complete stock of Lewis Beeware and Dadant's foundation, Root's Extractors, Bingham Smokers and Honey Knives, Tin Cans and five- and ten-pound pails, and a very complete line of Glass Honey Jars. As we are lo-

cated on the Main Trunk Lines, we can give you prompt service; however, order your supplies early as transportation is slow at its best. Send us that list, and we will quote you, giving you the benefit of our early-order discounts.

Deroy Taylor Company, Newark, Wayne Co., New York

SOUTHERN HEADQUARTERS ITALIAN BEES AND QUEENS

1 lb. bees, no queen..... \$2.25
2 lbs. bees, no queen..... 4.00
For 50 or more, 20c less on each swarm.
These go express charges collect, at buyer's risk.
If wanted by Parcel Post add 50c for 1 lb.
and 75c for 2 lbs., for guaranteed safe arrival at your postoffice. Shipper reserves right

to demand return of empty cages at his expense.

1 Untested Italian queen..... \$1.25
12 Untested Italian queens..... 13.25
50 or more, each..... 1.00
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Around the Office—Continued

tinoous. I'll bet, too, he don't get out the house one mornin in a dozen afore trouble starts onto him or domestic criticism gets agoin and he goes down to the old honey shop haired up and as owly as the mostly venerable U. S. Senate when it gets to considerin the present president of the U. S. But where I feel myself warmest toward Mr. Latshaw is in his disposishun toward them as evidently he regards as unfriendly to himself. I like the general idea of gettin them by the hair of the head and then keepin a good holt and startin the draggin process and keepin it a goin as long as the hair holds. It ought to be a correctin infloence. It also ought to be satisfactory to Latshaw. It would be to me if the draggin was kept up long enough. Some might say it aint right and it lacks fine feelin. They aint

(Continued on page 59.)

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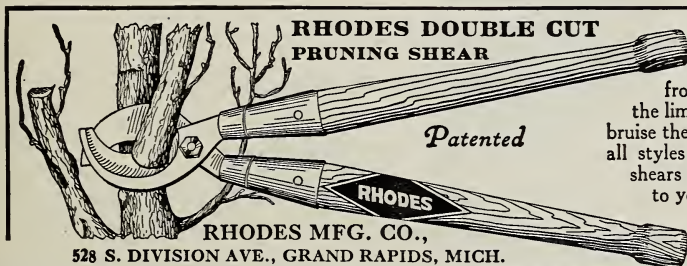
Answer the farmers' big questions, How can I grow crops with less expense? How can I save in planting potatoes? How make high priced seed go farthest? The

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American Bee Journal

Hamilton, Illinois

Around the Office—Continued

in no posishun to judge, they aint. They don't know Latshaw's provocashun. They don't know who's been pesterin him or how long. I know jest how he probably feels about it all, and I hope the line he says he was a gettin on the hair pullin plan didn't slip nowhere nor break. It ought to do the business. I like the whole idea entire. I like Latshaw better the more I think of it. I only wish squash bugs and bass as won't bite had hair of the head. I don't know but what I wish my old garden patch, my hoe and my lawn mower had too. I see more uses for Latshaw's plan the more I think of it. I'm goin to write him as to how to get a line on it and ask him too if it allays works smooth on men bigger'n what he is. I can see objections to the plan sometimes if it wont work sure on big size men allays certain.

P. S.—I am also goin to ask Latshaw for about how long a while after applyin the hair-holt-and-drag plan on a feller's hostiles a body can expect smother sailin. He

(Continued on page 61.)

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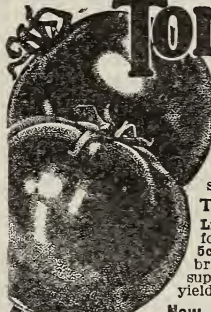
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THE KRETCHMER MFG. COMPANY

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Our Food Page—Continued from page 27.

oven. If it is a commercial graham flour, from which much of the bran has been sifted, a larger proportion of graham may be used. This proportion is about right for the home-ground flour.

SOUR MILK BUCKWHEAT GRIDDLE CAKES.

1 qt. sour milk 1½ teaspoons salt
3½ teaspoons soda 1 tablespoon melted
3 cups buckwheat flour shortening

Mix the soda and salt with the flour and sift into the sour milk, beating well. Add the melted shortening last. If the batter is too thick, thin with a little water. If it is too thin, add more flour. Part white flour may be used, in which case it will be necessary to use a little more. Bake on a hot griddle and serve at once with plenty of honey. The shortening may be omitted, but with it the cakes are less apt to stick.

STEWED PRUNES AND APRICOTS.

½ lb. dried apricots ½ lb. dried prunes
¼ to 1/3 cup honey

Wash the apricots and prunes thoroly, cover each with water and soak several hours, preferably over night. In the morning place the fruit on to cook in separate dishes and simmer very slowly until tender. The prunes will probably require a longer time to cook than the apricots. When done, combine them, sweeten to taste with honey and cool before serving.

FRUIT CUP.

1 cup pineapple 1 banana
2 oranges 1 cup canned peaches
½ cup dates honey

Cut all the fruit in small pieces and combine, measuring the dates after they are stoned and cut up. Sweeten to taste with honey and serve cold in sherbet glasses. It is difficult to give the amount of honey, as some canned fruit is much sweeter than others.

All measurements level.

Bees Not Proved Guilty.—Continued from p 16.

early in the spring, and is often found in large numbers on the opening flower buds and young stems. We know, too, that the aphid is a sucking insect, that it punctures the skin with its tiny beak and sucks the sap. These opening buds and leaves are often covered with honeydew which the aphids exude from their bodies, and which, according to Professor Gossard, furnishes a good medium for the growth and distribution of the blight germs. May it not be,

therefore, that a study of the green aphid in its connection with ants, will furnish a much more promising field for investigation along this line than will the honeybee? My opinion, based upon a study of these species of insects, is that if we can eliminate the apple aphid and other sucking species, notably leaf hoppers, from our orchards, we shall have made a long stride toward eliminating the fireblight.



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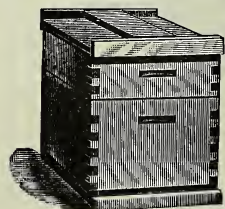
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Around the Office—Continued

don't say the effect is permanent, I notice. Paps he don't drag 'em long enough.

* * *

"Does Mel Pritchard live inside the hive? Mr. Miller isn't the only one who was glad to see his picture. Thanks for it." —Mrs. E. A. Brown, West Chazy, N. Y.

He don't. He is just as liable to be found around a skunk hole as a bee entrance or stoopin meditative over a ant's nest. But wherever he is he's a thinkin and a watchin some big or little critter's habits. Me and he are hostile, but I can't deny he knows somethin and is a close-on observer.

* * *

J. I. Emery of Meriden, Ct., contributes a real jule to my department by sendin me a clippin from one of the big mail-order houses' catalogs. It is a picher of a Porter bee escape alongside which is printed this enlightenin descripshun: "Bee escapes facilitate the moving of honey from the hive and supers. The escape is fastened to a board after making a suitable hole in some tree. Directions for use are sent with each one. Shipping weight, 1 oz. Price each,

(Continued on page 63.)

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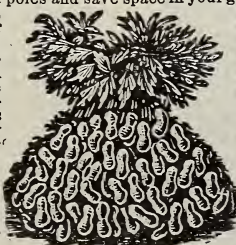
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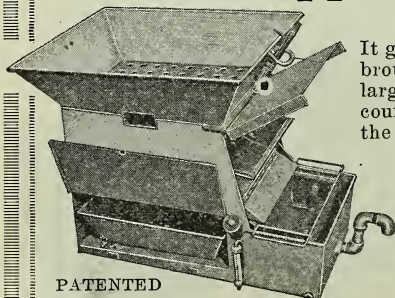
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F. J. Severin -:- Imperial, Calif.

Around the Office—Continued

17c." By the shippin weight given, I calculate the mail order house don't send the tree for borin the hole in. How can anybody work it if they don't?

* * *

That feller Somebody of Rutherford, New Jersey, writes two pages urgin my picher and name be printed in Gleanins. Nothin doin. I aint good lookin, and I aint good feelin except when I'm fishin and then there aint no pesterin cameryman around. No, sir, my picher'll never be in Gleanins. I aint in no way stuck on myself as I know of. Only one man on Gleanins force knows who I am and he won't tell. The Roots nor Iony Fowls haint any more'n a guess who I am, so they haint.

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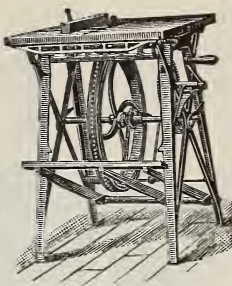
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